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FIRE ENGINEERING

The Journal of the Fire Protection Profession Since 1877

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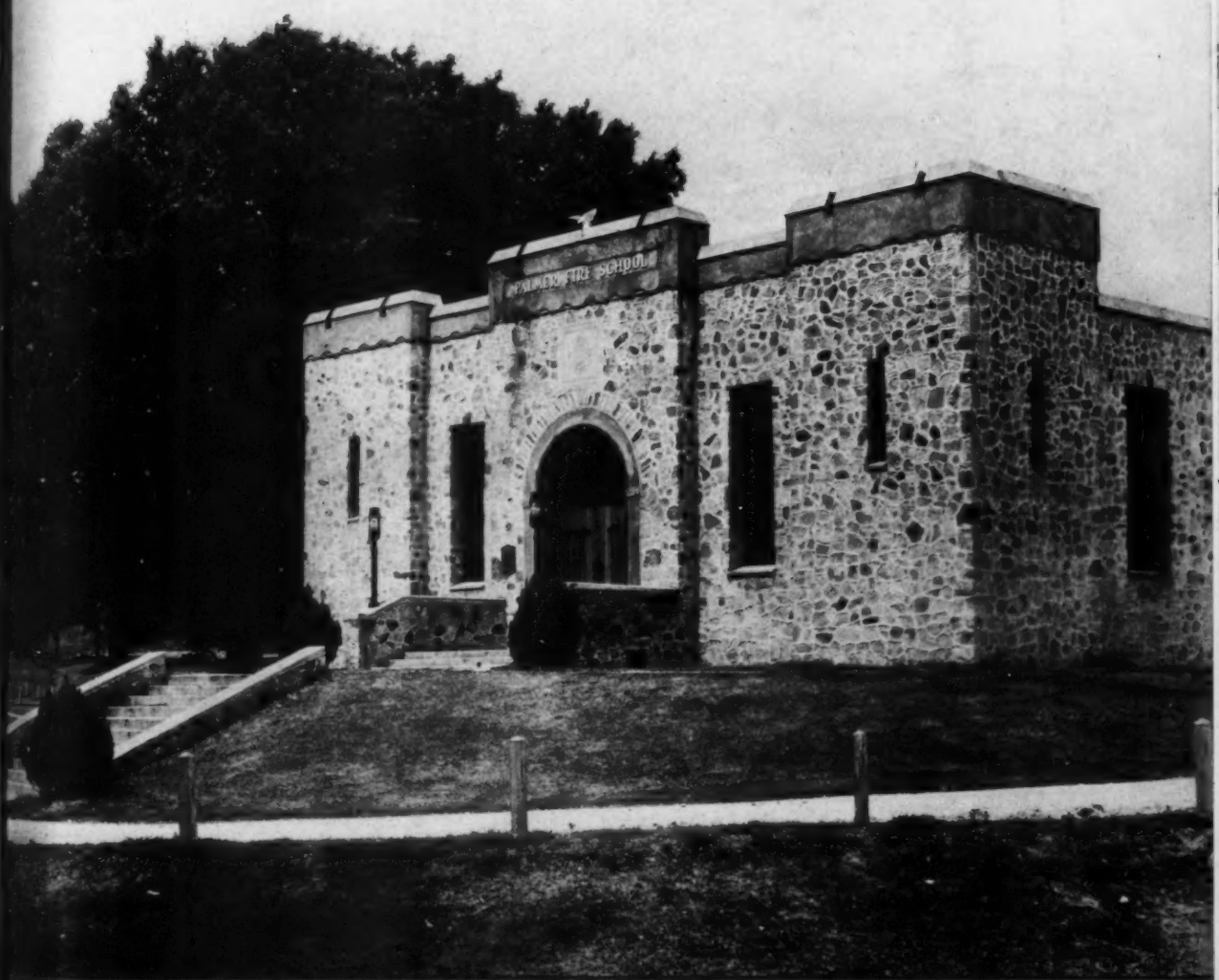
SEPTEMBER, 1943

Vol. 96. No. 9

Palmer Fire School of Charlotte, N. C. (See Story on Page 574)



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FIRE ENGINEERING

A Consolidation of Fire and Water Engineering, The Fire Engineer and Fire Protection

CONTENTS

Vol. 96 September, 1943 No. 9

	Page
With the Editor By Fred Shepperd	561
Wartime Defense Problems Feature I. A. F. C. Conference	563
Preventing Fires in Soft Coal	567
Practical Training for Auxiliary Firemen By Fred Shepperd	569
Toxic Gases Produced by CTC on Burning Magnesium Bombs	571
Small North Carolina City Has Modernized Department	572
Charlotte, N. C., Has Modern Fire School	574
Questions and Answers	577
The Watch Desk	578
Malleable Iron Couplings on Fire Hose The Round Table	581
False Alarms	584
What's Burning	586
Manufacturers' Announcements	592
Convention Dates	593
On the Book Shelf	595

FRED SHEPPERD
Editor

Everything is Different

WHAT a change the war hath wrought in our daily lives!

- Women doing men's work, men doing women's work; *everyone* fussing about certain things that can't be helped, and *no-one* doing other things that should be done.

- As the progress of the war speeds up, abroad, other things go slower, at home.

The Mails!

- Take the mails, for instance. We have never had so many complaints of slow delivery as at present. It's tough, but the post office, the railroads and everyone else concerned with transportation, are finding their hands more than full, and we'll have to put up with it awhile longer.

- So don't crab if your magazine is late. We get it into the mails at the usual time—and then hope for the best! What more can anyone do?

The Publishers

FIRE ENGINEERING

The Journal of the Fire Profession since 1877; published on the fifteenth of each month by Case-Shepperd-Mann Publishing Corp., 24 West 40th St., New York 18, N. Y., also publishers of *Water Works Engineering, Sewage Works Engineering*, etc. ¶Subscription price U. S. and Latin America, $2 a year; Canada, $2.50; Foreign, $3; Single copies, 25c. ¶Member of Audit Bureau of Circulations and Associated Business Papers, Inc. ¶Entered as second-class matter April 15, 1929, at the Post Office at New York, N. Y., under Act of March 3, 1879. ¶Contents of this issue copyrighted, 1943, by Case-Shepperd-Mann Publishing Corp. ¶KARL M. MANN, President; I. HERBERT CASE, Vice-President and General Manager; FRED SHEPPERD, Secretary and Editorial Director; W. J. GIBSON, Eastern Representative; WM. H. TOPHAM, Circulation Manager. CHICAGO OFFICE: W. S. CLEVENGER and L. M. ROCHE, 6 No. Michigan Ave., Chicago 2, Ill.; SAN FRANCISCO: CHARLES H. WOOLLEY, 605 Market Street, San Francisco 5, Calif.; LOS ANGELES: AUGUST HAURIN, 6000 Miramonte Blvd., Los Angeles 1, Calif. ¶Printed in U. S. A.

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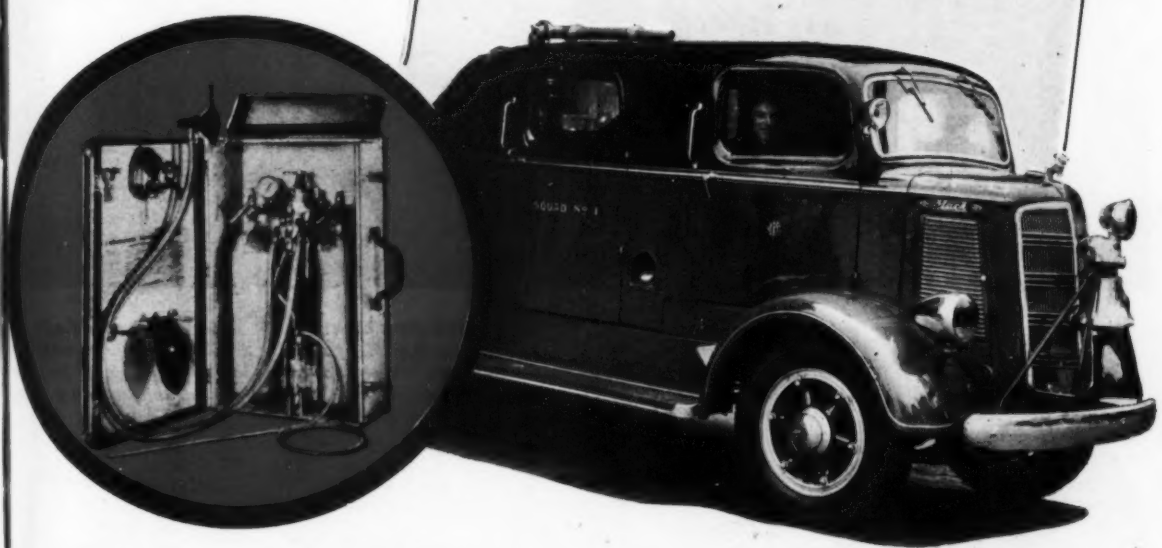

PERFORMANCE COUNTS!

In judging the value of any equipment there can be no better determining factor than time-tested performance in actual service. That the Chicago Fire Department, under the outstanding and progressive leadership of Fire Commissioner M. J. Corrigan, has equipped all of its modern squad cars with E & J Resuscitators after long years of satisfactory results is the soundest kind of evidence of E & J dependability. It is typical of the experience reported by the many other leading cities that have adopted this modern automatic breathing machine.

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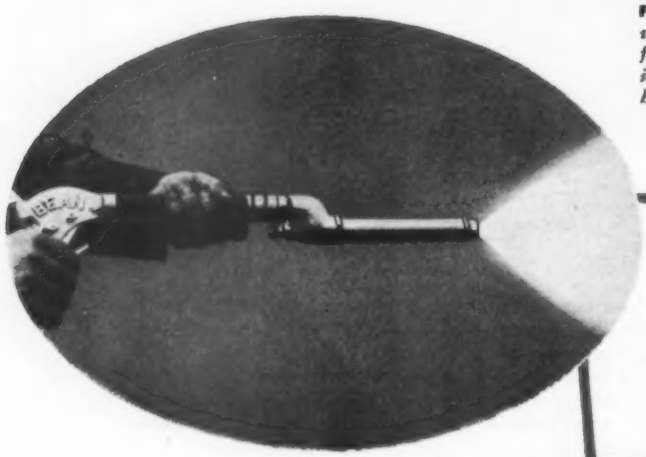

FMC FIRE FIGHTER GUN . . . *shows trigger-lock gun releasing close-up fog for closed areas. Simple turn of adjusting barrel with left hand changes stream to any degree of fog needed. The pump makes the pressure; the gun controls it. One man can fight fire with this gun, and can handle one ¾-inch hose easily. Gun can be poked into cellars, attics, partitions and other hard-to-get-at places.*

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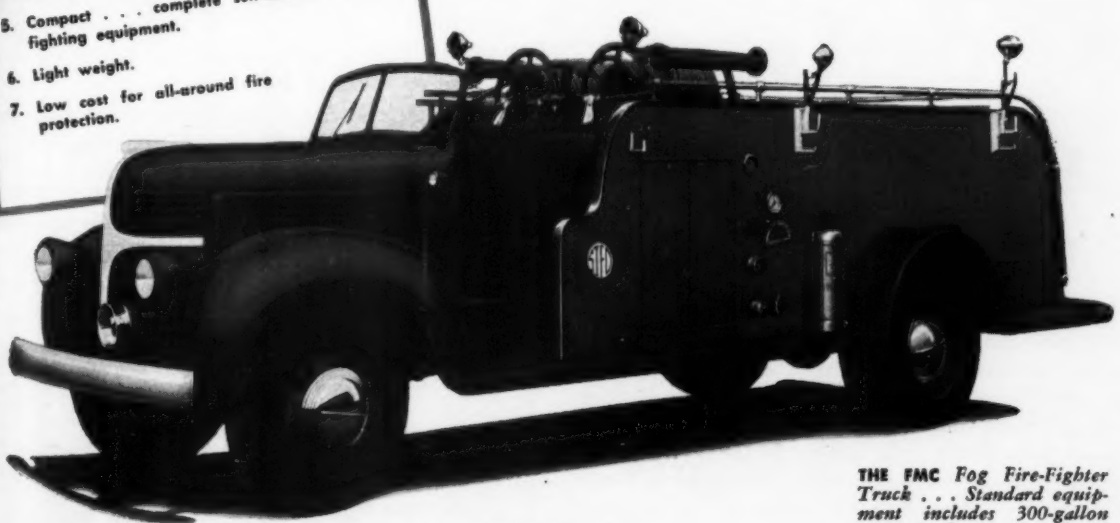
5. Compact . . . complete self-contained fire-fighting equipment.
6. Light weight.
7. Low cost for all-around fire protection.



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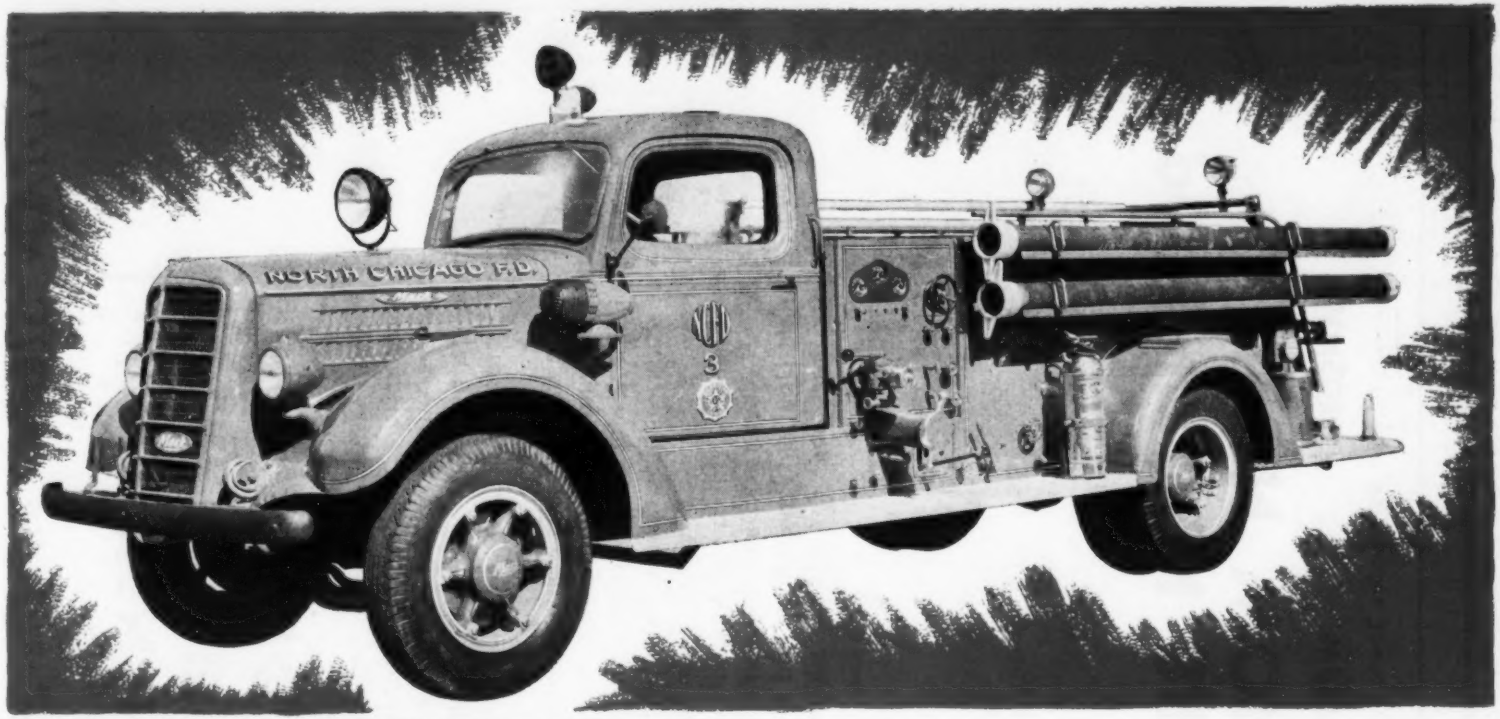

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Wherever **FIRE**
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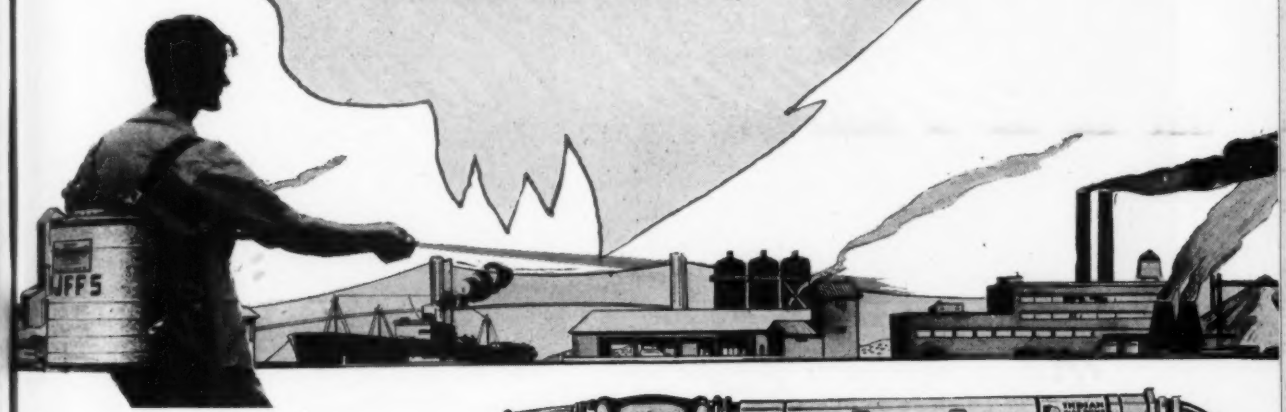

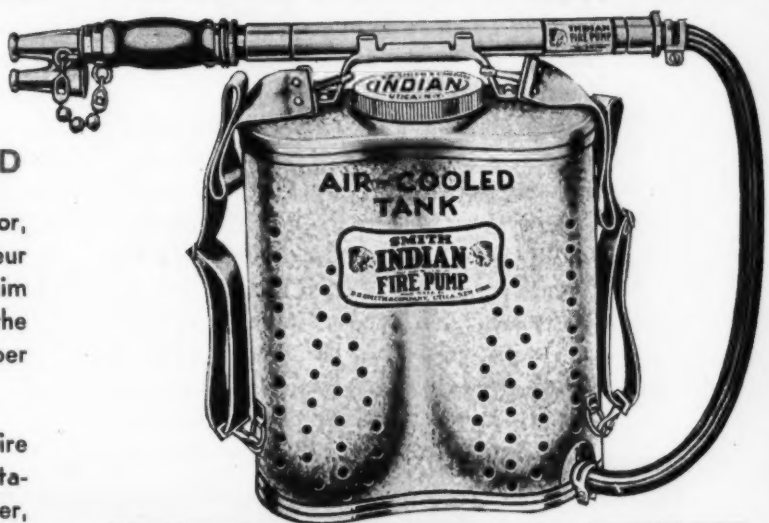

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Wythe District F. D., Hampton, Va.

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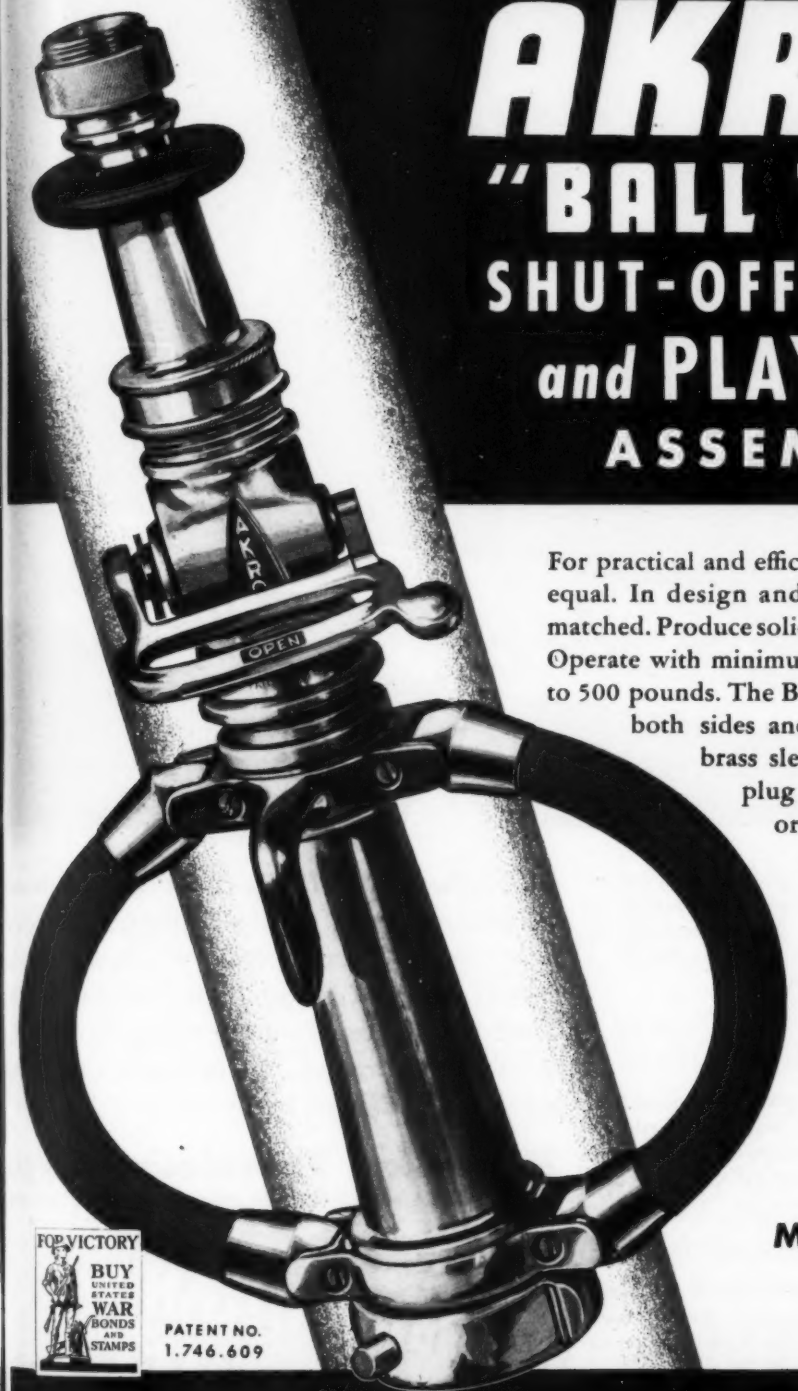

For practical and efficient service they're without equal. In design and construction they're unmatched. Produce solid stream of maximum range. Operate with minimum effort at any pressure up to 500 pounds. The Ball Valve is suspended from both sides and seats against the face of brass sleeve. Far superior to solid plug type. Withstands bumping or dropping without jamming. Four sizes, ¾", 1½", 2½" and Master. Offered in several assemblies to meet every need.

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A $100 War Bond will be given for the best name for this new coupling. All you need do is think up an appropriate name for this new coupling. Letter it plainly on ordinary white paper and put it in the mails for us to the address below.

Entries must be post marked not later than October 20, 1943.

This contest is open to any active member of any paid or volunteer fire department in the U.S.A.

Several of the country's best known and highly respected fire chiefs are to act as judges, including Daniel Tierney, Arlington, Mass., Secretary and Treasurer of the I.A.F.C.; Selden Allen, Brookline, Mass., Past President and New England Director of the I.A.F.C., and Joseph Sullivan, Utica, N. Y., Past President of I.A.F.C. The decision of the judges to be final. Winner will be announced in the November issue of FIRE ENGINEERING. In the event of ties, the tying contestants will be required to write a letter of not over 100 words giving reasons for selecting the name, in which case the contestant submitting the best letter will be awarded the prize.

While this is a new coupling, yet it has been on the market and in service long enough to prove its practical value to fire departments. Made by a long-established firm with a wide reputation for precision manufacturing, this coupling is definitely the last word in skillful engineering and workmanship. Its features will be readily appreciated by any wide-awake fire chief. Probably no other on the market has been subjected to more thorough engineering and testing. Now we offer it as the finest, most practical coupling money can buy.

Here's WHY it's a BETTER Coupling:

1. Easier and faster to assemble because of better hand grips.
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5. No lugs to be battered or broken—causing injury or loss of pressure.
6. Least affected by snow or ice—which can be chipped out easily.
7. Better for packing on trucks—more hose stored in less space.
8. No lugs to break off or be hammered off because of reinforcing abutments.
9. Hose can be played out faster and safer. No sudden stops or jerks to injure men or weaken fabric.

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NO ACTION
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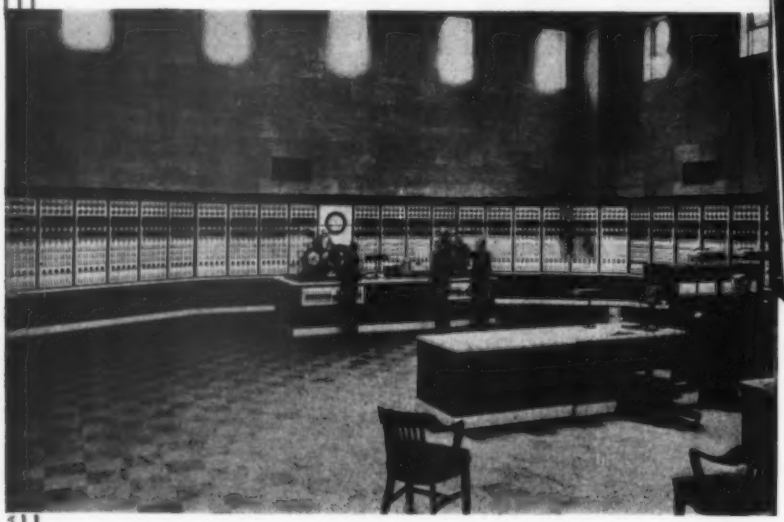

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READY AND WAITING FOR THE ALARM

One of the largest and most efficiently designed fire alarm control rooms in the world with operators constantly on duty to receive and transmit alarms of fire to the fire fighting forces, and a magnificent array of modern fire extinguishing equipment, but — there is no action until an alarm is given and the location of fire determined. Not until then is the fire department energized. The effectiveness of the municipal fire defenses is limited to the adequacy of the means employed for sending alarms.

Inadequate box distribution causes delay, confusion, fire waste and the consequent impairment of national resources. When fires occur the distance to the nearest fire alarm box is a matter of vital consequence — 300 feet in mercantile and manufacturing districts and 500 feet in residential districts are the recognized maximums for safety. The U. S. Chamber of Commerce is responsible for the assertion — *"There is practically no City where there are enough fire alarm boxes!"*

Plans for improvement are in order — we will cooperate freely.

THE GAMEWELL COMPANY
Newton Upper Falls Massachusetts

FIRE ENGINEERING

SEPTEMBER, 1943 VOL. 96. NO. 9

With the Editor

OCD Pumps After the War The question as to what will be done with the OCD pumps after the war is over is in the minds of many Fire Chiefs today. While these pumps were built for the specific purpose of operating on fires brought about by enemy action, some cities may feel that these units can take the place of regular fire apparatus and will therefore fail to purchase needed apparatus when the war is over.

It should be pointed out that OCD pumpers were not built for regular fire fighting service, but only for emergency work incidental to enemy action, which service would entail very infrequent operation of these units.

The Government retains title to these units, and they are not expected to be employed as a substitute for regular fire fighting apparatus. However, after the war is over, and the Government finds itself in possession of a greater number of the various types of OCD pumps, it is a sound conclusion that the units will not be junked. Instead, a market will be sought for them.

It has been suggested that such a market might be found among utilities, for pumping out manholes and similar service.

However, the pumps, with 500-gallon capacity at 120 pounds pressure, are far too large for this service. They are cumbersome and would prove costly.

While they would serve well for dewatering basements after fires, this limited usage would not justify their maintenance solely for the one purpose.

It has also been suggested that the skid pumps might find a ready application for standby service in small water works. But here again it should be remembered that the pumps are not suitable for this particular application except in a comparatively few instances. The majority of water supplies of small communities are taken from deep wells, requiring specially designed pumps. The skid pumps could not be used for this purpose.

They might be used to good effect, however, for industrial plant protection as they might also for overhead irrigation systems on large truck farms. They would also be satisfactory for fire protection for waterside resorts, where a supply of water within easy drafting distance would be available.

Where mounted on old chassis, the period of usefulness of skid pumps would be limited to the life of the chassis. Mounted on new chassis, or chassis in good condition, they can be used as rural and village fire protection units.

The front mounted pumps constitute the nearest approach to a regular fire engine. In this unit, the truck body is free for carrying hose and other equipment.

These units are satisfactory in town, village and rural fire fighting, as well as for resorts and industrial plants. They would serve well for brush and grass fires if the chassis are capable of carrying a water tank of sufficient capacity.

However, the condition of the truck on which the pump is mounted will determine the useful life of the unit and its pumping ability.

As with the skid pump, the front mounted pump would not be suitable for utility service because of the high capacity and pressure produced.

The trailer pumps should serve well in industrial plants because of the small place required for their storage. They would also

be satisfactory for town, village and rural protection, but must have a hose carrier to accompany them to carry the hose, ladders and other equipment. For large farms, clubs, estates and resorts, they would serve well.

The principal disadvantage of the trailer pumps is the necessity of providing a tow car, and the lack of space on the units for carrying equipment. They would therefore be considered unsatisfactory for city use.

The trailer pump has the same disadvantages as the skid and front mounted pumps for utility use.

It seems to us that the ultimate, as well as satisfactory, outlet for the OCD units would be in industrial plants, rural communities, forest fire fighting services, and resorts. They should not be counted upon to take the place of regular fire apparatus in municipal fire departments, as they were never designed for this purpose.

Are Sirens Coming Back? The recent resumption in use of fire apparatus sirens in Washington, D. C., following a fatal collision between a hook and ladder truck and a van, and the recent action by Commissioner M. J. Corrigan of Chicago in ordering the fire department of that city to resume the use of apparatus sirens may be the straws which show the direction of the wind.

The increasing number of accidents occurring to fire apparatus as a direct result of the Army ban against using the siren is building up a just resentment against the order, which, we have always held, was neither necessary nor beneficial.

Approximately a score of fire departments have reported to us on accidents to fire apparatus in recent months attributed directly to the silencing of sirens. Among these are: Baltimore, Md.; Norwalk, Conn.; Linden, N. J.; Charlotte, N. C.; Buffalo, N. Y.; Camden, N. J.; Pensacola, Fla.; Greensboro, N. C.; Methuen, Mass.; Bayonne, N. J.; Hoboken, N. J.; New Brunswick, N. J.; Union City, N. J.; Waverly, N Y.; and Washington, D. C.

Because each accident means the loss of the services of a piece of apparatus for possibly months, it can be appreciated that such accidents have a material bearing on the fire protection of the cities involved.

Furthermore, the delay in responding to alarms, due to the necessity of driving more slowly and carefully when the sirens are silenced, probably has a bearing on the increasing number of multiple alarm fires which have occurred during the past year.

It is hoped that the ban on the use of fire apparatus sirens, which was ill advised to say the least, may be removed at an early date.

Fred Sheppard

Newly Elected Officers and Retiring President, I.A.F.C.

L. to R. Jay W. Stevens, of San Francisco, reappointed Executive Secretary; Chief Daniel B. Tierney, Arlington, Mass., re-elected Secy.-Treas.; Chief Art J. Baker, Lewistown, Mont., President; Chief C. A. Delaney, Lakewood, Ohio, 2nd Vice Pres.; Chief Andrew T. Callahan, Harrison, N. J., retiring President. (Photo of Chief Samuel J. Pope of Boston, 1st Vice Pres., appears elsewhere in this issue.)

Wartime Defense Problems Feature I. A. F. C. Conference

Army, Coast Guard, Navy and Federal Bureaus' Officials Participate in Instructive Program

DESPITE the difficulties of travel today, due to gasoline rationing and to badly overcrowded passenger trains and buses, nearly seven hundred fire chiefs, fire apparatus and equipment manufacturers, and others concerned with fire protection assembled at the Palmer House in Chicago, on August 1-September 3, for the seventieth annual conference of the International Association of Fire Chiefs. It was an unusually representative meeting, for strong representations were present from all sections of the country.

In keeping with the times, the program stressed fire protection in its relation to national defense. Speakers representing the Navy, Coast Guard, Army, Federal Bureau of Investigation, Office of Civilian Defense, War Production Board and Internal Security Division contributed much timely information on this subject.

The President, Chief Andrew T. Callahan, of Harrison, N. J., presided at all sessions.

The Tuesday morning session (August 31) was devoted to the usual opening ceremonies, including the memorial service. The latter was impressively staged by the Chicago Fire Department.

The afternoon meeting, following presentation of various reports, initiated the technical program.

The first paper, which discussed "The Effective Reach of Powerful Streams," was presented by Colonel Clarence Goldsmith, Chief Consultant, Fire Defense Section, Office of Civilian Defense, and Assistant Chief Engineer, National Board of Fire Underwriters.

Colonel Goldsmith discussed tests, made in conjunction with the Chicago Fire Department, on large streams at unusually high pressures. These tests confirmed conclusions by John R. Freeman, in 1888, as to the maximum effective reach of fire streams.

In a paper entitled 'Handling of Electrical Fires," Chief Walter W. Stephen, of the Monsanto Chemical Company Fire Department, Anniston, Ala., outlined the methods he has found effective in combatting hot and spreading fires involving buildings situated under or near overhead electrical transmission lines carrying from 22,000 to 110,000 volts.

"Scouting and the Menace of Fire" was discussed by Captain Fred C. Mills, Director of Health and Safety, Boy Scouts of America.

Following a review of the Boy Scouts organization, Captain Mills pointed out the important place the subject of fire held in all Boy Scout literature, and added that many Scouts had chosen the fire service as their life's work.

Work of the Underwriters' Laboratories

The service performed by the Underwriters' Laboratories in testing fire protective devices and materials and appliances presenting fire or other hazards, and particularly where changes in design and construction had been made necessary by war demands for critical metals, was reviewed by Alvah Small, President of the Laboratories, in a paper entitled "Cutting Corners to Meet War Needs for Critical Materials."

Typical of the innovations in fire protection equipment developed to meet critical metal shortages was the nesting pump tank, designed to take the place of the soda and acid extinguisher. This pump tank employs no critical materials, and the design permits the shipping of the units in compact form—nested inside each other.

Wednesday (Sept. 1) Sessions

"Fire Department Personnel Training Systems, Past and Present," was the first topic on the Wednesday morning session. It was discussed very ably, and at length, by Sherwood Brockwell, Chief of the North Carolina Volunteer Fire Department.

After reviewing the history of firemanic training, Chief Brockwell analyzed the fundamentals of a sound firemanic training program. Chief among these was the need for instructors who were fully qualified in the subjects to be taught. Experienced fire fighters are needed to teach fire fighting is the opinion of Chief Brockwell.

W. J. Scott, K. C., Fire Marshal, Province of Ontario, Canada, gave an interesting and instructive account of Canadian civilian protection in a paper entitled "Civilian Defense in Canaada."

"The Relationship Between the O. C. D. and the Fire Service in the United States" was discussed by F. S. Gay, Technical Assistant Chief, Protection Branch, OCD, Washington, D. C.

Following an outline of the various activities of the OCD, Mr. Gay stressed the growing cooperation between the fire service and the OCD.

CONVENTION HIGHLIGHTS

Attendance, approximately 700.

Thirty-four equipment and apparatus manufacturers participate in outstanding exhibit.

Conference inspects Underwriters' Laboratories and sees fire tests.

1944 convention to be in Grand Rapids, Mich.

Officers elected: President, Chief Art J. Baker, Lewistown, Mont.; First Vice President, Chief Samuel J. Pope, Boston, Mass.; Second Vice President, Chief C. A. Delaney, Lakewood, Ohio; Secretary-Treasurer Chief Daniel B. Tierney, Arlington, Mass. Reappointed as Executive Secretary, Jay W. Stevens, San Francisco, Cal.

L. to R. Chief Samuel J. Pope, 1st Vice Pres. I.A.F.C.; Glen T. Scott, of American-LaFrance-Foamite Corp., Kansas City, Mo.; Chief Wm. J. Cawker, Topeka, Kans.; Chief and Mrs. Charles L. Slade, Des Moines, Ia.; Chief Olander Lind, Kansas City, Kans.; Chief Ray Tiller, Waterloo, Ia., Secy.-Treas., Missouri Valley Div.

Roi B. Woolley, Chief, Coordination Unit, Fire Defense Section, Protection Branch, OCD, Washington, D. C., spoke on "Mutual Aid—Now and Tomorrow." He emphasized the diminishing danger from enemy air raids, but pointed out that transportation of war munitions and the increasing number of war planes in the sky constitute hazards with potentialities on a par with those incidental to enemy attacks.

Following Mr. Woolley's address, the manufacturers who exhibited at the conference were introduced to the delegates.

A Visit to Underwriters' Laboratories

Wednesday afternoon was devoted to a visit to the Underwriters' Laboratories, where the delegates saw various types of fire tests and tests on safety and other equipment carried out. The visitors were escorted through this great establishment, after witnessing some fire extinguishing demonstrations, by employees of the Laboratories.

The extinguishing demonstrations included: Portable water-spray applicator; demonstration of gasoline fire in four foot vat; Extinguishment of oil fire by means of water-spray from nozzles on fixed piping system above 8 x 12 foot tank; Extinguishment of oil fire by means of water-spray from nozzles on fixed piping system at rim of large tank; Portable water-spray applicator used on oil fire in 8 x 12-foot tank; Magnesium fires, demonstration of approved extinguishing material and of effect of water; Mechanical foam from portable applicator used to extinguish oil fire in 8 x 12 foot tank; Foam production by mechanical and chemical methods showing range, stability, volume, etc.; Demonstration of discharge from five different types of spray-nozzles for fixed piping systems; Portable water-spray nozzles for use on hose to be discharged at 45 degree angle to study performance.

Internal Security Discussed

The Thursday morning session was devoted to a program which featured Army, Navy, Coast Guard, F. B. I., and other speakers. Because of the confidential nature of much of the material presented, this session was closed to all except those wearing membership badges. Five topics were discussed at this session. They were:

"Fire Fighting in the Manufacture of Ammunition," by A. L. Headlough, Chief, Fire Protection, Trojan Powder Company, Plum Brook Ordnance Works, Sandusky, Ohio.

"Mutual Problems of Fire Chiefs and Law Enforcement Agencies in Guarding the Home Front," by S. J. Drayton, Special Agent in Charge, Federal Bureau of Investigation, United States Department of Justice, Chicago, Illinois.

"Training Coast Guard Fire Fighters," by Lloyd Layman, Lieutenant Commander, United States Coast Guard, Fort McHenry Training Station, Baltimore, Maryland.

"The Bureau of Yards and Docks and Its Fire Protection Program for Naval Shore Establishments," by Harold K. Hughes, Lieutenant Commander, United States Naval Reserve, Navy Department, Bureau of Yards and Docks, Washington, D. C.

"The Internal Security Program of the Army," by W. E. Guthner, Brigadier General, G. S. C., Director, Internal Security Division, Service Command, ASF, Chicago, Illinois.

Training Navy Personnel in Fire Fighting

"Training Our Naval Forces in Fire Fighting Aboard Battleships," by Harold J. Burke, Lieutenant Commander, Navy Department, Bureau of Ships, Washington, D. C., was the first topic on the Thursday afternoon session, and followed the report of the Exhibit Committee Chairman, Chief James T. Keegan.

Commander Burke described the work of the Naval school in fire fighting established at Norfolk Navy Yard, and displayed a motion picture film which illustrated the principles of fire extinguishment. This film is part of the training course at the Navy schools at Norfolk and elsewhere.

The Problem of Priorities

The Honorable Maury Maverick, Director, Governmental Division of the War Production Board, reviewed the growing cooperation between the Association and his Bureau, and stressed the need for continued cooperation in the matter of priorities for fire apparatus and equipment.

George A. Cumming, Chief, Fire Defense Section, Government Bureau, War Production Board, gave a thorough, yet concise, review of procedures to be followed in obtaining priorities for fire apparatus and equipment.

The final topic on the program was "Protection of Defense Industries from

L. to R. Art J. Baker, Pres., I.A.F.C., Lewistown, Mont.; Jay W. Stevens, Exec. Secy., I.A.F.C., San Francisco; J. B. Davies, Mgr. Indus. Dept., Mine Safety Appliances Co., Pittsburgh, Pa.; F. B. Philbrick, Pres., Gamewell Co., Newton Upper Falls, Mass.; Richard M. Lawless, Bi-Lateral Fire Hose Co., Chicago; Hubert Walker, American-LaFrance-Foamite Corp., Elmira, N. Y.; Daniel B. Tierney, Chief, Arlington, Mass., Secy-Treas. I.A.F.C.

Left (L. to R.) Chief J. H. O'Neill, Niagara Falls, N. Y.; John S. Timlin, Sr., Fire Chief, U.S.A. Port of Embarkation, New Orleans; Chief Wm. R. Ringrose, Murray, Utah; Chief Wm. Meinheit, Berkeley, Calif. Center—Chief Wm. F. O'Neil, Weehawken, N. J.; Chief Jas. F. McGrath, Cliffside, N. J. Right—Chief Thomas W. Carlon, Bend, Ore.; Chief Edw. Grenfell, Portland, Ore.; Chief W. P. Payne, Spokane, Wash.; Chief Oliver T. Sanborn, Portland, Me.

the Municipal Fire Department Viewpoint," by Chief Peter Steinkellner, Milwaukee, Wisconsin. Chief Steinkellner told of the work of his department, as well as other departments in Milwaukee County in developing fire protection for war industries in that area.

Resolutions

The following resolutions were adopted at the Conference:

Post-War Planning

WHEREAS, the United States Government is desirous of avoiding a period of unemployment at cessation of World War Hostilities, and

WHEREAS, it will be necessary to provide employment through Public Works while industry is being reconverted to peace-time activity, and

WHEREAS, it is anticipated that the United States Government will make money available for partial payment for these works, in the form of grants, and

WHEREAS, Municipalities must contribute a large proportion of projects on which employment may be given to those released from the Armed Forces and War Industries at the conclusion of the war, and

WHEREAS, the Municipalities having fully completed plans for public improvements will receive first consideration for grants from the Federal Government,

BE IT RESOLVED, THEREFORE, that this Association go on record as recommending that Fire Departments cooperate in this worthy program by having plans prepared for improvements, such plans to be complete for immediate initiation, and that such improvements include new fire apparatus, equipment and hose, fire alarm central stations and fire alarm equipment, new fire stations or improvement of old, water system improvement, etc.

Deferment of Firemen

WHEREAS, approximately seven per cent of the personnel of the professional fire service has already been drawn into armed forces

WHEREAS, it is practically impossible to secure replacements due to the fact that the qualifications of professional fire fighters are practically the same as those of the armed forces,

WHEREAS, those who are deferred for dependencies are attracted by the higher wages in other industries,

WHEREAS, the weakening of the personnel of the professional fire service constitutes a serious threat to the safety of war industry, storage and shipment of war supplies,

WHEREAS, thirty-six per cent of the men now in the Fire Service are sub-

(*Continued on page 573*)

Active Members Present at the I.A.F.C. Convention, Chicago

L. F. Elkins, Chief, Decatur, Ala.
R. B. Hill, Chief, Bessemar, Ala.
E. L. Mathews, Chief, Tuscaloosa, Ala.
Walter W. Stephen, Chief, Monsanto Chemical Company, Anniston, Ala.

M. J. Brun, Chief, Fort Smith, Ark.
J. Carmichael, Chief, Little Rock, Ark.
J. A. Embree, Chief, Hope, Ark.
William S. Johnson, Chief, S. W. Proving Grounds, Hope, Ark.
J. P. Linebarier, Chief, Ordnance Works, El Dorado, Ark.
Frank H. Smith, Chief, El Dorado, Ark.

Eugene H. Enos, Chief, 20th Century-Fox, Los Angeles, Cal.
Howard Heringer, Chief, Rio Vista, Cal.
Edward Lamb, Ex-Chief, Stanford University, San Francisco, Cal.
William Meinheit, Chief, Berkeley, Cal.
Jay W. Stevens, San Francisco, Cal.
John Stone, Chief, East Vallejo, Cal.
Albert J. Sullivan, Chief, San Francisco, Cal.

J. J. Fitzpatrick, Chief, Pueblo, Colo.
John F. Healy, Chief, Denver, Colo.
F. A. Taylor, Chief, Colorado Springs, Colo.

Thomas F. Cavanaugh, Chief, Waterbury, Conn.
T. H. Donnelly, Chief, West Hartford, Conn.
Paul P. Heinz, Chief, New Haven, Conn.
John King, Chief, Hartford, Conn.
Michael W. Lawlor, Ex-Chief, State Fire Coordinator, Middletown, Conn.

H. R. Chase, Chief, Miami, Fla.
George E. Hare, Chief, Jacksonville, Fla.
R. N. Hershey, Chief, Lake Worth, Fla.

D. W. Brosnan, Chief, Albany, Ga.
W. T. McKinney, Chief, Rome, Ga.
H. Walton Scott, Chief, Augusta, Ga.
W. C. Thompson, Chief, Athens, Ga.
Max Wiggins, Chief, East Point, Ga.

George W. Bauman, Chief, Lake Forest, Ill.
Thomas D. Blake, Chief, Rockford, Ill.
J. Boissenin, Chief, Ottawa, Ill.
Earl E. Cratty, Chief, Galesburg, Ill.
William Fleege, Chief, Lombard, Ill.
Charles J. Foucek, Chief, Naperaville, Ill.
Frank W. Freeman, Chief, North Chicago, Ill.
Paul E. Gauthier, Chief, Calumet City, Ill.
Morris Hintz, Chief, Elgin, Ill.
E. C. Haskins, Chief, Highland Park, Ill.
Albert Herring, Chief, Murphysboro, Ill.
G. N. Hofstetter, Chief, Evanston, Ill.
G. M. Houren, Chief, Winnetka, Ill.
James Hrach, Chief, Berwyn, Ill.
George Knol, Chief, Cicero, Ill.
Albert Luedcke, Chief, Freeport, Ill.
Roy H. Marquart, Chief, Kankakee, Ill.
Frank C. McAuliffe, Chief of Patrols, Chicago, Ill.
F. B. McDowell, Chief, Brookfield, Ill.
Charles Muirhead, Chief, Danville, Ill.
Anthony J. Mullaney, Chief Fire Marshal, Chicago, Ill.
Connel L. Nicol, Chief, Sterling, Ill.
John O. Nygren, Chief, Joliet, Ill.
H. A. Oakes, Chief, LaGrange, Ill.
Charles F. Oetke, Chief, Lombard, Ill.
Paul L. Partridge, Chief, Mt. Vernon, Ill.
E. J. Ryan, Chief, Aurora, Ill.
August Schmidt, Chief, Rock Island, Ill.
E. Schneider, Chief, Libertyville, Ill.
Edward P. Smith, Chief, Great Lakes, Ill.
Rudolph Sonnenberg, North Chicago, Ill.
W. C. Thrun, Chief, Batavia, Ill.
Elmo D. Waters, Chief, Bloomington, Ill.
William C. Watters, Chief, Oak Park, Ill.
Walter Zibble, Chief, Wilmette, Ill.

Carter Bowser, Chief, Fort Wayne, Ind.
Wilbur A. Cowdrey, Chief, Valparaiso, Ind.
Charles DeVleeschower, Chief, South Bend, Ind.
Harry H. Fulmer, Chief, Indianapolis, Ind.
Thomas King, Chief, East Chicago, Ind.
C. C. Lampman, Chief, Whiting, Ind.
Forest Laufraw, Chief, Goshen, Ind.
John A. McCracken, Chief, Gary, Ind.
Richard L. Minser, Elkhart, Ind.
E. C. Schultz, La Porte, Ind.
Ollie Weigand, Chief, Whiting, Ind.
Harry E. Williams, Chief, Richmond, Ind.

Earl Byers, Chief, Belle Plaine, Ia.
R. H. Grant, Chief, Fort Dodge, Ia.
E. Kohout, Chief, Cedar Rapids, Ia.
R. G. Kolb, Chief, Boone, Ia.
Charles B. Kuhl, Chief, Sioux City, Ia.
M. F. Lunderson, Chief, Oelwin, Ia.
Waldo Merrill, Chief, Council Bluffs, Ia.
Leo J. Miller, Chief, Denison, Ia.
W. L. Phillips, Chief, Sac City, Ia.
Daniel H. Shire, Chief, Mason City, Ia.
Charles L. Slade, Chief, Des Moines, Ia.
Ray Tiller, Chief, Waterloo, Ia.

C. W. Brown, Chief, Witchita, Kans.
William J. Cawker, Chief, Topeka, Kans.
Olander Lind, Chief, Kansas City, Kans.
C. J. Henry, Chief, Lexington, Ky.
John H. Krusenklaus, Chief, Louisville, Ky.
H. E. Mosier, Chief, Fort Knox, Ky.

Robert A. Bogan, Chief, Baton Rouge, La.
H. E. Cassidy, Bogalusa, La.
S. J. Flores, Chief, Shreveport, La.
A. A. Hanson, Chief, Westwego, La.
J. A. Hebert, Chief, Plaquimine, La.
Fernand Privat, Chief, Rayne, La.
M. G. Riviere, Thibodaux, La.
E. G. Smith, Chief, Bogalusa, La.
John Timlin, Chief, Army Embarkation Depot, New Orleans, La.

O. T. Sanborn, Chief, Portland, Me.

Joseph A. Giammatteo, Chief, Glen Echo, Md.

Selden R. Allen, Chief, Brookline, Mass.
Benjamin L. Chase, Chief, Haverhill, Mass.
William A. Floyd, Chief, Winthrop, Mass.
Herman E. Gutheim, Chief, Cambridge, Mass.
Carl J. Kiessling, Chief, Worcester, Mass.
J. C. McNally, Chief, Somerville, Mass.
Charles Normandin, Chief, American Optical Co., Southbridge, Mass.
Samuel J. Pope, Chief, Boston, Mass.
George Mansfield, Lt. Commander, U. S. N. R., Fire Marshal, Charlestown Navy Yard, Boston, Mass.
Richard M. Salamone, Chief, Needham, Mass.
Charles F. Stackpole, Chief, Lowell, Mass.
Robert M. Tappen, Chief, Gardner, Mass.
Daniel B. Tierney, Chief, Arlington, Mass.

Gustav Anselm, Chief, Wyandotte, Mich.
Frank W. Bender, Jr., Chief, Saginaw, Mich.
J. C. Benoit, Chief, River Rouge, Mich.
R. W. Bystrom, Chief, Marquette, Mich.
Ledger Chauvin, Chief, Grosse Pointe, Mich.
J. T. Clark, Chief, Milan, Mich.
C. A. Crosier, Chief, Battle Creek, Mich.
George F. Dansbury, Chief, Crosse Pointe Farms, Mich.
Don M. Dickerson, Chief, Eloise Hospital, Eloise, Mich.
Hugo R. Delfs, Ex-Chief, Lansing, Mich.
Joseph Fifarek, Chief, Traverse City, Mich.
H. E. Fisher, Chief, Lansing, Mich.
Frank A. Ford, Chief, Highland Park, Mich.
Hank Goudy, Chief, Wayne, Mich.
John M. Griffin, Chief, Hamtramck, Mich.
George G. Hill, Chief, Taylor Township, Mich.
R. M. Hitchings, Chief, Flint, Mich.
Henry Hoebeke, Chief, Grand Haven, Mich.
A. M. Jaeger, Chief, Ecorse, Mich.
John A. Keefe, Chief, Detroit, Mich.
Paul Lefke, Ex-Chief, Lansing, Mich.
W. H. Mitchell, Chief, St. Joseph, Mich.
R. E. Mottesheard, Chief, Dearborn, Mich.
Edward C. Palmer, Chief, Grand Rapids, Mich.
Norman Pritchard, Chief, Ferndale, Mich.
Edward L. Rector, Chief, Grosse Pointe Park, Mich.
T. E. Sanford, Milan, Mich.
Michael J. Scolatti, Chief, Iron Mountain, Mich.
Chris Smith, Chief, Muskegon, Mich.
Frank F. Trombley, Chief, Sault Ste. Marie, Mich.
J. Frank Van Atta, Chief, Kalmazoo, Mich.
John R. Weber, Chief, East Grand Rapids, Mich.
R. E. Wilson, Chief, Alpena, Mich.
John Wyngarden, Chief, Zealand, Mich.
Ben J. Zahn, Chief, Ann Arbor, Mich.

Napoleon Ayotte, Chief, Hibbing, Minn.
L. H. Clark, Chief, Cloquet, Minn.
C. E. Ginther, Chief, Rochester, Minn.
C. D. Goldsmith, Chief, Duluth, Minn.
J. H. MacWhirter, Chief, Eveleth, Minn.
N. F. Quist, Chief, Virginia, Minn.
Steve Rosener, Chief, Red Wing, Minn.
William J. Sudeith, Chief, St. Paul, Minn
L. Turk, Chief, Chisholm, Minn.
Earl A. Traeger, Chief, Minneapolis, Minn.
Joe Williams, Chief, St. Louis Park, Minn.

L. McDonald, Chief, Jackson, Miss.
Joseph F. Hosemann, Chief, Vicksburg, Miss.

Earl Bricker, Chief, St. Charles, Mo.
C. W. Gabel, St. Louis, Mo.
W. H. Gardner, Chief, Fire Patrol, Kansas City, Mo.
James William Jackson, Chief, Marceline, Mo.
John B. Jones, Chief, Joolin, Mo.
Otto W. Jordan, Chief, Fire Patrols, St. Louis, Mo.
John T. Lynch, Chief, Kansas City, Mo.
John W. Snider, Chief, Kirksville, Mo.
L. J. Urbanski, Chief, St. Joseph, Mo.
Lucian B. Smith, Billings, Mont.

A. J. Baker, Chief, Lewistown, Mont.

I.A.F.C. Delegates View Demonstration at Underwriters Laboratory.

F. W. Donnelly, Chief, Ordnance Plant, Grand Island, Neb.
B. P. Hensman, Chief, Hastings, Neb.
D. A. O'Connor, Chief, Omaha, Neb.
R. J. Van Fleet, Chief, Nebraska Ordnance Works, Fremont, Neb.

Myron Barbour, Ex-Chief, Long Branch, N. J.
Ernest Beckert, Chief, West New York, N. J.
Arthur W. Bilby, Chief, Montclair, N. J.
A. T. Callahan, Chief, Harrison, N. J.
Albert Chamberlain, Chief, Hillside, N. J.
Fred H. Fowler, Chief, Keyport, N. J.
Charles Friedel, Chief, Union City, N. J.
Charles A. McGinley, Chief, East Orange, N. J.
George J. Gmeiner, Chief, Orange, N. J.
Thomas F. Gussner, Chief, Bloomfield, N. J.
James G. Hogan, Chief, Bayonne, N. J.
Arthur C. Jacques, Chief, New Brunswick, N. J.
Harry J. Jarvais, Chief, Elizabeth, N. J.
James T. Keegan, Chief, Salvage Patrols, Newark, N. J.
George P. Lasber, Chief, Edgewater, N. J.
John H. Lennox, Chief, Camden, N. J.
Anton Matovsky, Chief, Deal, N. J.
James F. McGrath, Chief, Cliffside Park, N. J.
George L. Mitchell, Ex-Chief, East Orange, N. J.
Thomas Murray, Chief, Summit, N. J.
William F. O'Neil, Chief, Weehawken, N. J.
Thomas J. Phelan, Chief, Trenton, N. J.
Oliver B. Presley, Ex-Chief, Long Branch, N. J.
Eugene M. Reardon, Chief, Port Monmouth, N. J.
Robert A. Reid, Chief, Belleville, N. J.
Thomas A. Schneider, Chief, Long Branch, N. J.
William G. Wandras, Chief, Kearney, N. J.
Charles G. Burnett, Chief, Newark, N. J.
Richard D. Quinn, Chief, Livingston, N. J.

J. E. Beaman
I. H. Case, Vice-President, FIRE ENGINEERING, New York, N. Y.
George W. Clough, Fire Marshal, Nassau County, N. Y.
Alexis B. Cunneen, Chief, Larchmont, N. Y.
Arthur J. Dillon, Chief, Binghamton, N. Y.
William A. Espy, Chief, Salvage Patrols, New York, N. Y.
S. J. Getman, Chief, Ilion, N. Y.
George Gray, Chief, Garden City, N. Y.
Charles H. Grothe, Ind. Chief, Schenectady, N. Y.
James J. Higgins, Chief, Schenectady, N. Y.
Andrew Hutch, Chief, Nulley, N. Y.
Frederick F. Knight, Chief, North Tonawanda, N. Y.
Frank A. Morrison, Ilion, N. Y.
William A. Muir, Niagara Falls, N. Y.
Joseph J. O'Leary, Chief, Greenwood Lake, N. Y.
J. H. O'Neill, Chief, Niagara Falls, N. Y.
C. R. Patterson, Chief, E. Herkimer, N. Y.
Wilbur F. Seaman, Fire Marshal, Hempstead, N. Y.
Fred Shepperd, Editor, FIRE ENGINEERING, New York, N. Y.
R. H. Swanson, Chief, Jamestown, N. Y.
R. E. Thurman, Chief, Frankfort, N. Y.
John J. Tubridy, Chief, Buffalo, N. Y.
H. A. Vincent, Herkimer, N. Y.

Frank W. Bennett, Chief, Durham, N. C.
Sherwood Brockwell, Chief, N. C. Volunteer Fire Department, Raleigh, N. C.
J. L. Croon, Chief, Wilmington, N. C.
J. C. Fitzgerald, Chief, Asheville, N. C.
W. H. Palmer, Chief, Charlotte, N. C.
Frank D. Shaw, Chief, Greensboro, N. C.

Harold J. Behrens, Chief, Cleves, Ohio
R. M. Clark, Chief, Kent, Ohio
C. A. Delaney, Chief, Lakewood, Ohio
Raymond Earls, Chief, Massillon, Ohio
Grover L. Frock, Chief, Springfield, Ohio
M. W. Gifford, Youngstown, Ohio
James E. Granger, Chief, Cleveland, Ohio
A. L. Headlough, Chief, Plum Brook Ordnance Works, Sandusky, Ohio
Barney J. Houston, Chief, Cincinnati, Ohio
James A. Kirby, Chief, Dayton, Ohio
John L. Kessler, Chief, Troy, Ohio
Harry A. King, Chief, East Cleveland, Ohio
V. L. Malloy, Chief, Salem, Ohio
John J. O'Doherty, Lorain, Ohio
James H. Onias, Dayton, Ohio
Martin K. Schoger, Jr., Cleveland, Ohio
F. T. Schlorf, Chief, Toledo, Ohio
L. P. Seiler, Amychega Falls, Ohio
H. L. Taplinger, Chief, Lima, Ohio
F. C. Vernotzy, Chief, Akron, Ohio

G. A. Goodin, Chief, Muskogee, Okla.
C. C. Jennings, Chief, Tulsa, Okla.
G. R. McAlpine, Chief, Oklahoma City, Okla.
Charles E. Slemp, Ex-Ind. Chief, Oklahoma City, Okla.

Thomas W. Carlon, Chief, Bend, Ore.
Edward Grenfell, Chief, Portland, Ore.

Charles E. Clark, Ex-Chief, Wayne, Pa.
R. A. Cornwall, Ind. Chief, Pittsburgh, Pa.
Hugh Jones, Chief, Edwardsville, Pa.
D. G. Kropf, Chief, Warren, Pa.
Frank Lord, Chief, Clifton Heights, Pa.
C. V. Rodgers, Chief, Ellwood City, Pa.
L. P. Scully, Chief, Erie, Pa.
Charles Smallenberger, Chief, Meadville, Pa.
A. S. Stauffer, Chief, Palmyra, Pa.
Joseph Thuer, Ind. Chief, Mckees Rocks, Pa.
John A. Weber, Chief, Fair Oaks, Pa.
Charles E. Wood, Ex-Ind. Chief, Chester, Pa.

Frank J. Callahan, Chief, Central Falls, R. I.
A. J. Cote, Chief, Woonsocket, R. I.
Thomas H. Cotter, Chief, Providence, R. I.
John A. Savage, Chief, Valley Falls, R. I.
Clarke K. Stedman, Chief, Davisville, R. I.

Carl E. Hunt, Chief, Sioux Falls, S. D.

J. S. Bolinger, Kingsport, Tenn.
C. M. Johnson, Chief, Knoxville, Tenn.
J. Roy Pyle, Chief, Kingsport, Tenn.
Connie O'Sullivan, Chief, Memphis, Tenn.

J. H. Boone, Chief, El Paso, Tex.
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Preventing Fires in Soft Coal

WHETHER or not under given storage conditions a given coal will heat spontaneously to any undesirable extent depends on many factors. These factors include (1) the tendency of that particular coal to take up oxygen, a tendency that decreases as the oxygen is absorbed; (2) the temperature at which the coal is piled; (3) the fineness of any pyrite present; (4) the original size of the coal in the pile; (5) the tendency of the coal to slack; (6) the moisture conditions; (7) the amount of air available to the coal permitted by the conditions of ventilation throughout the storage pile; (8) the presence of foreign substances, such as wood, straw, and refuse; (9) the possibilities of dissipating any heat developed; and (10) any added heat from external sources. Owing to the complexity of these factors, exactly when and how much the coal will heat cannot always be judged for every storage condition. It is not difficult to store coal satisfactorily, provided these factors are evaluated correctly and the means are at hand for carrying out the proper methods needed for each case.

(1) Spontaneous heating is caused by the uniting of the coal with oxygen; it is the same as the burning process in the furnace, except that it proceeds at a much lower rate. The following is quoted from Bureau of Mines Technical Paper 409:

"Oxidation of the coal substance itself is the main cause of spontaneous combustion; some of the organic constituents may contribute more to the heating than others, but it has not been shown that any one constituent exerts a preponderant influence to the exclusion of the rest.

"The process of spontaneous heating is operative at room temperatures as soon as freshly broken coal is exposed to the air. It begins with the physical absorption of oxygen and is continued by the formation of a solid chemical compound of coal and oxygen, which is gradually decomposed as the temperature rises. The coal increases in weight by the amount of oxygen retained. There follows the breaking up of the solid compound of coal and oxygen and the formation of the final oxidation products—carbon dioxide, carbon monoxide, and water. This process generates heat."

Tendency to Take Oxygen

Coals vary a great deal in their natural or characteristic tendency to take up oxygen. In general, it is relatively low for high-rank coals. It is extremely low for anthracite. It is higher for coals of high bed moisture content, high oxygen content, and high volatile content, all of which characterize the low-rank coals. Schmidt reports in "Effects of Storage and Oxidation of Coal upon Coking Properties," Iron and Steel Engineer, March, 1941, that a High Splint Kentucky coal under identical conditions consumed oxygen three times as fast as a Pocahontas No. 3 West Virginia coal.

(2) With the Appalachian coals, oxidation begins to be appreciable at about 85 degrees F. and increases in intensity as the temperature rises. With lower-rank coals the beginning temperature is lower. No coal has as an inherent property a critical temperature at which there is a sharp transition from relatively slow to rapid heating.

The reaction between coal and oxygen is considered to double for about each 15 degrees F. If the temperature of the coal is 60 degrees F. and it is raised to 90 degrees F., the rate at which the oxygen unites with the coal increases four times.

(3) Pyrite when finely divided can increase the tendency of a coal to heat spontaneously. Although it has been shown that coals containing virtually no pyrite have fired spontaneously, it has also been quite definitely shown that fine pyrite, when present in the coal, does increase the rate of oxidation.

Pyrite is a compound of iron and sulfur. In general, the sulfur content of coal is largely in the pyrite compound. Pyrite unites with oxygen and water to form sulfuric acid and iron sulfate, giving off considerable heat in the process. Coal users who store coal under the various conditions found in industry in general are cautious about storing high-sulfur coals. Rains or water-flooding of coal may increase the rate of oxidation of the pyrite by supplying needed water or by washing off any products of oxidation formed on it. Pyrite is also accused of disintegrating the coal by its oxidation to bulkier products.

(4) An important factor in the heating process is the total surface area of the coal exposed to the air; the greater the surface the more chance of union with oxygen. Table 1 shows the variation of surface area with size. For 1 ton of coal in the form of a solid cube, there is about 48 square feet of surface; as the cube is broken down to smaller sizes, say to slack coal, there may be 20,000 or 30,000 square feet. Experience indicates that good-size egg or lump bituminous coal ordinarily gives no trouble from spontaneous heating when stored, mainly because there is not enough surface area.

Table 1—Variation of Surface Area of Ton of Coal with Coal Size (Coal Considered to Be in the Form of Cubes or Spheres of the Size Designated)

Size	Square Feet Per Ton	Size, Mesh	Square Feet Per Ton
2.83-foot cube..	48	4	8,727
6-inch lump...	272	8	17,416
3-inch nut....	544	16	34,796
1½-inch	1,088	30	70,341
¾-inch	2,176	50	139,479
⅜-inch	4,352	100	276,595

(5) Coals that slack in storage provide more surface area for oxidation.

(6) Many persons have found that coal stored wet gives more trouble than coal stored dry. Attempting to cool a coal pile with water frequently creates further hot spots. Changes in wetness affect the ventilation of the pile and also the heating activity of the pyrite. Schmidt of the Bureau of Mines has suggested in a report unpublished to

date that the movement of water vapor through a coal pile, with any resulting condensation on the coal, could aggravate heating conditions. He calculates that condensation of the small amount of water required to increase the moisture content from, say, 3 per cent of the weight of the coal to 4 per cent is sufficient to raise the temperature of the coal over 30 degrees F.

(7) Air moving through a pile of coal supplies oxygen for burning and also carries away heat. It may cause increased heating or increased cooling, depending upon the amount. When coal is piled by letting it drop, the larger lumps fall to the outside. Such a pile creates an ideal condition for spontaneous heating. If one spot heats, it will gradually heat the whole pile. There is always the chance that some spot will receive exactly the right ventilation so that the correct amount of oxygen is brought in and yet not enough heat is carried away. There is much air movement on the outside edges, yet in the center the air can hardly penetrate. There is no ventilation at some spots and much at others. Naturally, somewhere in the pile will be a spot where there is just the right ventilation to produce a "hot" spot.

(8) Foreign substances in the coal pile are always a hazard. Pieces of wood, straw, or oily rags not only affect the ventilation but frequently create pilot fires to start burning of the coal.

(9) If the heat developed spontaneously is removed as rapidly as it develops, the coal temperature will not rise. In a pile of coal where the heat is not removed, however, the temperature rises, and the rate of the oxidation or burning increases rapidly; it is self-aggravating. A pile of coal, therefore, might do anything from actually cooling to very rapidly catching fire, depending on how much heat is removed. The time element is involved. A pile of coal might stand 3 or 4 weeks without trouble, as it has not had time to heat, but later it might take fire.

(10) All sources of external heat should be avoided to the extent possible.

Satisfactory Storage Methods

To assure absolutely that no undesirable heating will develop in any stored bituminous or subbituminous coal, it is necessary to use careful methods of storage that either prevent access of air to the coal entirely or provide for access of enough air throughout the pile to carry away the heat as rapidly as it develops. This latter is practicable only for sized coals. Different kinds of coal act quite differently in storage. It is not practical or economical for every plant to obtain the site and equipment needed to carry out methods that would satisfactorily store any and every coal. The problem for each plant is to select the most practical method that will give sufficiently satisfactory results for the kind of coal that is to be stored. Good judgment must be used, based on some knowledge of the causes of spontaneous heating and also on the results obtained for somewhat similar cases.

Temperature Observations

The temperature of a coal pile should be tested periodically with a thermometer or an equivalent scheme. This gives plenty of warning and ample time to avoid anything dangerous; it is only when the pile has been ignored that matters might get somewhat out of hand.

Lengths of ordinary gas pipe of about ¾-inch size, closed at the bottom, reaching nearly to the base of the coal, may be placed about every 25 feet. A thermometer may be dropped down the pipe to explore for temperature. The pipe should not be removed once it has been inserted; this ordinarily leaves a little chimney in the coal, which facilitates heating. If a temerature of about 120 degrees F. is reached, the coal should be watched closely for any rapid rise in temperature. Plans should be completed so that the coal can be moved when desired or satisfactorily water-flooded. Sometimes the temperature will slowly rise to as high as about 160 degrees F., then fall; at other times it will continue to active firing conditions.

Generally the coal must be moved when too much heating develops. The heated coal can be spread out to cool; often it is more convenient to use it at once.

Using water to put out a fire may be effective for the moment, but in many instances this only delays the necessity of moving the coal. If the equipment available permits thoroughly flooding the coal with water, the heating can be stopped. Generally, this flooding must be repeated at intervals. Spraying the top of the pile with water from a nozzle usually is ineffective; the water seldom gets down to the hot spot. It would be better to ram the nozzle down into the coal. Sometimes a mass of coke that water cannot penetrate forms over the hot spot.

Improvement has been found in the use of the "water spear." The spear is made from pipe about 1 to 2 inches in diameter closed at the bottom in a sharp point. Side outlet holes are drilled into the pipe just above the point. At the other end of the pipe is a hose connection. A cross handle may be used at the top of the spear to aid manipulation. The spear is rammed down into the pile to the hot spot, facilitating water flooding.

Small storage fires have been put out by smothering with carbon dioxide gas. Either dry ice (frozen carbon dioxide) or the tanked liquid carbon dioxide may be used as a source of the gas. This method is based on the fact that if oxygen is prevented from reaching the coal the fire will go out. Use of carbon dioxide must be carefully planned and proper ingenuity used for satisfactory results. The oxygen must be kept from the coal long enough for it to cool appreciably. Heating may redevelop after the carbon dioxide disappears. For some conditions, its use may provide a needed delay in the burning.

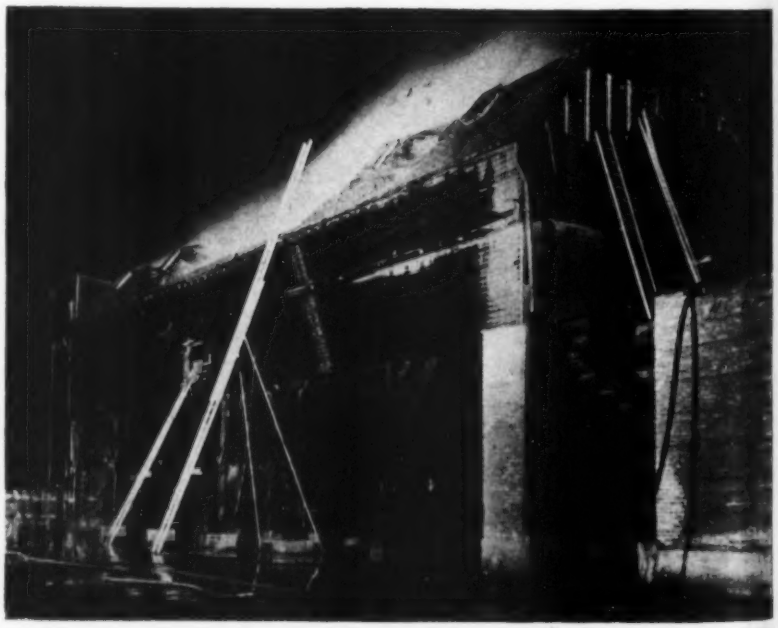
Excerpts from Bureau of Mines Information Circular 7235.

Enviable Record Established by Gila Bend Fire Department

Chief Fred Pearce and the men of the Gila Bend Gunnery Base Fire Department of Gila Bend, Ariz., have established an enviable record. Over a period of one year not a dollar's worth of damage by fire has resulted on the post.

Chief Pearce started his career as a fire fighter back in 1912 as a volunteer fireman in Missouri. From Missouri he and his family moved to Oklahoma where, in the course of twenty years, he worked from the bottom in the Fire Department up to superintendent of fire alarms.

In 1932 he and his family moved to Arizona. His retirement didn't last very long as he started to work at Luke Field in Phoenix, Ariz., on December 12, 1941, and was stationed there for six months before coming to Gila Bend to help pioneer the post Fire Department.



One Thousand Tons of Coal Were Destroyed by Fire in This Wooden Hopper

Practical Training for Auxiliary Firemen

By FRED SHEPPERD
Editor, FIRE ENGINEERING

IN this installment of the series of articles on "Practical Training for Auxiliary Firement" are discussed fire department knots.

Q. What is a figure eight knot, and for what purpose is it used?

A. A figure eight knot is shown in fig. 1. Its principal use is to form a knot, or stop, on the end of a line.

Fig. 1. Figure Eight Knot

Q. What is a stevedore knot, and for what is it used?

A. A stevedore knot, shown in fig. 2, is a simple knot, being formed in exactly

Fig. 2. Stevedore's Knot.

the same manner as the figure eight knot, with the exception of an additional turn around the line. While its principal use is to form a large knob or stop on the end of a line, it is applicable for the same purposes as the overhand knot.

Q. What is a bowline, or bowline knot? What is its purpose and how is it formed?

A. The bowline knot is one of the most useful of all knots in fire department work. It is a safe knot, never slipping and at the same time it does not tighten when put under tension. One of the common uses of this knot is in hoisting equipment, including ladders, to top of building. For hoisting ladders, a double half hitch is placed around each beam of the ladder, slightly above the center, one hitch being placed above and one below the rung at each beam. Then the two ends of the rope are brought up to a bowline, and from there one rope reaches to the roof. The short free end of the rope is made into a binding knot.

The completed bowline is shown in fig. 3.

The formation is shown in three steps, namely, A, B and C of fig. 4.

The procedure is as follows: Take the end A in the left hand and form a loop, as shown in the first illustration. Then grasp the end of the line with the left hand and form an overhand knot at B as shown in the second step, pulling through the short loop C. Then insert end A through loop C and turn the loop D to the left over C and pull on the line. This completes the knot.

The bowline knot is generally used to form a loop, especially when the line and loop will be subject to a severe strain. It is a safe knot and will not jam and is often employed when a line is passed around some object.

Q. How is the running bowline formed, and for what purpose is it used?

A. A running bowline is formed by tying a bowline with a short loop and then pulling the line through the loop to

Fig. 5. Running Bowline

form a noose as shown in fig. 5. This knot can be used under any condition where a free running noose is desirable.

Q. What is a bowline on a bight, and how is it formed?

A. The bowline on a bight differs appreciably from the plain bowline in the form of construction. Its characteristics are, however, about the same. In the

Fig. 6. Bowline on a Bight Fig. 7. Slide Knot

first step in forming a bowline on a bight, a loop is formed approximately three feet long by folding the end of the line of rope back on itself. Then the double rope is tied into an overhand knot, the knot being about a foot and a half from the end. The loop at the end of the line is then placed over the overhand knot, forming the bowline on the bight as shown in fig. 6.

This knot is safe and does not jam under tension.

Q. What is a slide knot and what is its particular advantage?

A. A slide knot is used for the same purpose as a slip knot, but is much easier to undo than the type of slip knot usually made. Fig. 7 shows the construction of a slide knot. The line at the upper left is a tension line.

Q. What is the purpose of the sheepshank and how is it made?

A. Where it is necessary to shorten a rope that has its ends already secured, the sheepshank is most effective in that it can be made to take up any amount of slack. Surprising though it may seem, the knot will not undo when submitted to heavy tension. The greater

Fig. 8. Sheepshank

the tension, the tighter the loop around the slack becomes. It is easy to undo once the tension is removed from the line. Fig. 8.

Q. What is a slip knot, and how is it made?

A. A slip knot, as the name suggests, is a knot which permits the rope to be tightened around the object to which it

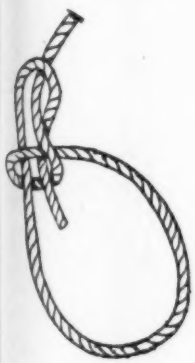


Fig. 3. Completed Bowline

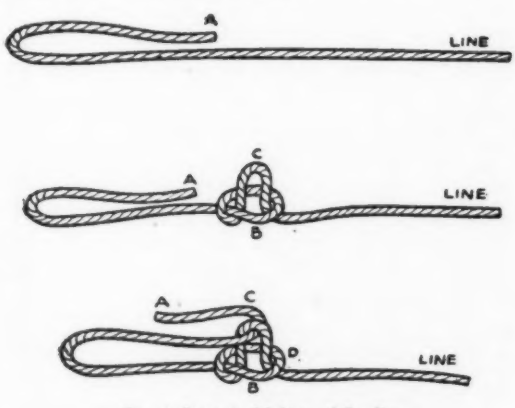


Fig. 4. Steps in Making of Bowline

is attached by pulling on a tension line. It is made by putting an overhand knot in the line and tightening the tension line through the loop formed by the

Fig. 9. Slip Knot.

knot. This knot is one of the most commonly used of slip and slide knots. It is easily made, and not particularly hard to undo. It is shown in fig. 9.

Q. How is a half hitch made, and for what purpose is it used?

A. Of all knots, the half hitch finds the widest usage. Not only is it used alone but in combination with a variety of other knots. It is very easy to make. As shown in the sketch, the rope is fastened to a timber by a single half hitch. In tying the half hitch, the free end of the rope is brought around the tension end and then brought under itself. It is shown in fig. 10.

Figure 11 illustrates the half hitch when tied around objects such as the crow bar, when hoisting such objects.

Q. What is a double half hitch, and what is its purpose?

A. The double half hitch is a knot made by placing a second half hitch on top of the first. This makes a much more secure fastening. Two half hitches in a hawser are sufficient to hold a ship to its mooring. Figure 12 shows a double half hitch, or as it is sometimes called, two half hitches.

Q. How is a rolling hitch formed and what is its advantage over a double half hitch?

A. A rolling hitch, which is made of two turns and two half hitches, is a more desirable fastening than the two half hitches (double half hitch), for it prevents the rope from slipping around the object to which it is fastened, It is shown in fig. 13.

Q. What is the round turn and half hitch, and for what purpose used?

A. A round turn and half hitch, as shown in fig. 14, is made up of two turns around the object with half hitch on top. It is used for the same purpose as the double half hitch or the rolling half hitch but is not quite as secure as the latter.

Q. What is a clove hitch (heaving line bend) and how is it used?

A. The clove hitch is a knot used for fastening rope to a post, chimney or other object which will not rotate when strain is brought on at a tangent to circumference of the object to which it is fastened. It is particularly useful in connection with half hitches for hoisting fire department appliances to the roof of a building. It is safe for fastening hose lines to chimneys, where roof is slippery or where hose is hanging over a cornice. The clove hitch is formed by passing the rope two times around the object, the end of the rope being passed under the second turn. See fig. 15.

(*Continued on page* 600)

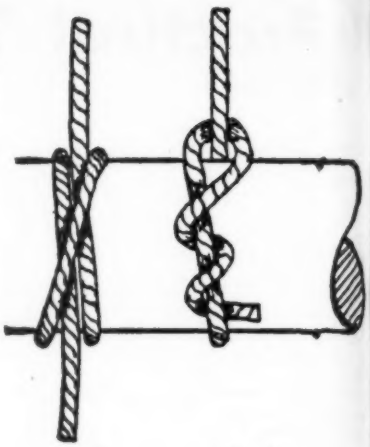


Fig. 15 Clove Hitch

Fig. 19 Timber Hitch

Fig. 10, Half Hitch

Fig. 11, Single Half Hitch

Fig. 12, Double Half Hitch

Fig. 13, Rolling Hitch

Fig. 14, Round Turn and Half Hitch

Fig. 11

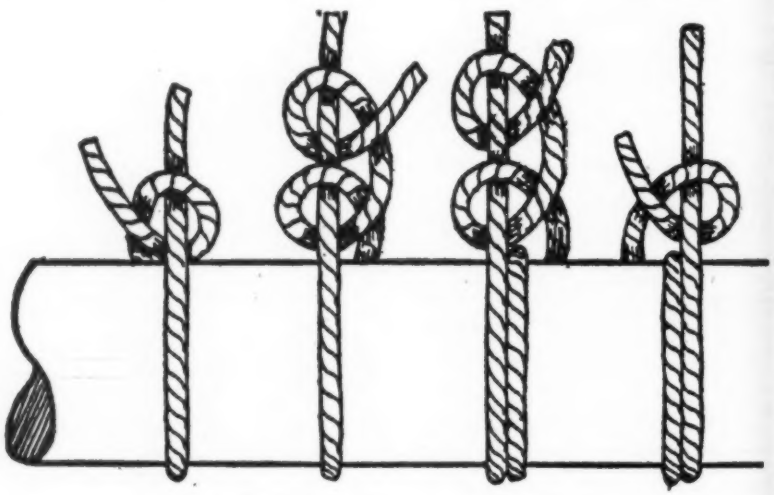


Fig. 10 Fig. 12 Fig. 13 Fig. 14

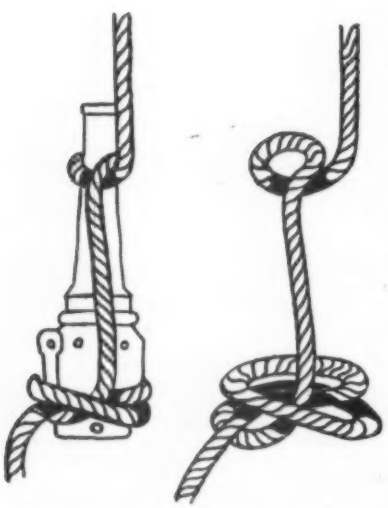


Fig. 16. Clove Hitch and Half Hitch Used in Sending a Nozzle Aloft; Clove Hitch to Be Placed Over Shut-Off Handle.

Fig. 17. Clove Hitch and Half Hitch Used in Sending a Crow Bar Aloft. Clove Hitch on Small End of Bar.

TOXIC GASES PRODUCED BY CTC ON BURNING MAGNESIUM BOMBS

Phosgene and Hydrogen Chloride Among Gases Released by Reaction Between Metals in Bomb and the Extinguishing Agent

CONFLICTING opinions exist regarding the gases produced by application of carbon tetrachloride-type fire-extinguisher liquid to burning thermit-magnesium incendiary bombs. It has been said that dangerous quantities of phosgene form as a result of such application; however, data of experiments with such applications have not come to the attention of the writers.

The chemical fire-extinguisher industry and others have generally agreed that carbon tetrachloride-type fire extinguishers (known to the trade as vaporizing-liquid fire extinguishers) should not be used to extinguish burning magnesium or thermit-magnesium incendiary bombs. This statement could hold regardless of whether or not dangerous quantities of noxious gases were formed, because the reaction between the extinguisher liquid and the burning magnesium is more violent than that of water without the accompanying wetting of surrounding materials, which is an important factor in the use of water.

However, such fire extinguishers are in widespread use, and if a burning incendiary bomb should ignite adjacent materials it might be expedient to use an extinguisher of this type to control this secondary fire, provided that incidental contact between the liquid and the bomb is not hazardous to the operator.

Because of the importance of this matter to civilian defense and the interest expressed in it by the Chemical Warfare Service and Office of Civilian Defense, the Bureau of Mines undertook a study in cooperation with the Chemical Fire Extinguisher Association to obtain experimental data.

This investigation was undertaken to determine the nature of the hazard from gases evolved if carbon tetrachloride-type fire-extinguisher liquid is applied to burning magnesium incendiary bombs purposely, contrary to widely publicized advice, or inadvertently. The tests were designed to determine (1) whether phosgene is formed and (2) whether other significant gases are formed under the same conditions.

The tests were conducted cooperatively by personnel of the Bureau of Mines and representatives of the Chemical Fire Extinguisher Association. Members of both organizations were present at all the tests. Two series of similar tests were conducted—one at the fire-test laboratory of one of the manufacturers in Newark, N. J., and the other at the Bureau's Central Experiment Station, Pittsburgh, Pa. In them carbon tetrachloride-type fire-extinguisher liquid was applied to burning magnesium chips and magnesium incendiary bombs on steel, concrete, and wood surfaces in experimental chambers. Test atmospheres were analyzed for phosgene, chlorine, hydrogen, chloride, carbon tetrachloride, carbon monoxide, and particular matter.

The fire tests were conducted in gas-tight chambers each having a capacity of 1,000 cubic feet. The walls and floor of the Newark test chamber were concrete, and the ceiling was transite asbestos board. This chamber constituted approximately half of a building constructed especially for such tests. The ceiling and floor of the Pittsburgh test chamber were galvanized sheet metal, and the walls were approximately half glass and half galvanized sheet metal. The metal inner surfaces of this chamber were coated with an acid-resisting aluminum paint.

Materials and Procedure for Conducting Fire Tests

Four tests were made with magnesium chips and seven with magnesium incendiary bombs on three types of surfaces, namely, steel, concrete, and wood. One magnesium-chip and one bomb test was made on each type of surface in Newark, and one magnesium-chip and one bomb test on wood, one bomb test on steel, and two bomb tests on concrete were made in Pittsburgh.

The magnesium chips used were machine turnings. Spectrographic analysis of the chips showed them to be primarily magnesium with traces of other elements. The trace elements, arranged in descending order of amounts present, were aluminum, iron, manganese, zinc, copper, titanium, silicon calcium, and sodium. One pound and 10 ounces (737 grams) of magnesium chips were used in each magnesium-chip test.

The bodies of four of the bombs were made of 2-inch O. D. by 1-inch I. D. magnesium tubing. The bodies of the other three bombs were made of ¼-inch walled magnesium tubing, as follows: A 2-inch O. D. outer shell was made, and another roughly concentric shell was inserted in it. Thus, all bombs had a wall thickness of 0.5 inch. One end of each bomb was closed with a plug of magnesium. About three-fourths of the space in the bomb was filled with a thermit mixture, and the remaining space was filled with a starter mixture and a fuse of magnesium ribbon. The average weight of the finished bombs was 941 grams (2.07 pounds).

The concrete block and the steel plate rested directly on the floor of the chamber in the tests at Newark but were supported 2¼ inches above the floor of the chamber by bricks in the tests at Pittsburgh. The wood platforms were placed over, but not touching, the steel plates in the tests at Newark and at Pittsburgh.

The magnesium-chip fire tests were made in essentially the same manner. The magnesium chips were spread out in a flat, circular pile about 18 inches in diameter and about 1.5 inches in height on the surface to be used. A few grams of powdered magnesium was used to facilitate ignition. After the chips were burning evenly all over, the extinguisher liquid was applied.

The bomb fire tests likewise were made in essentially the same manner. Some of the bombs were ignited by the magnesium ribbon fuse; others failed to ignite in this manner, and a small pile of magnesium chips and some powdered magnesium were placed around the fuse end of the bomb to facilitate ignition. After the chips were burning evenly all over, the extinguisher liquid was applied.

The bomb fire tests likewise were made in essentially the same manner. Some of the bombs were ignited by the magnesium ribbon fuse; others failed to ignite in this manner, and a small pile of magnesium chips and some powdered magnesium were placed around the fuse end of the bomb to facilitate ignition. The extinguisher liquid was applied as soon as the bomb was burning satisfactorily.

Results of Tests

When the extinguisher liquid was applied to the burning magnesium as a solid stream from the hand-type extinguisher a violent reaction ensued accompanied by formation of dense clouds of acrid smoke. It was only by bending over that the operator could remain in the chamber and continue to apply the liquid to the fire. In the tests at Newark the chamber door was held lightly closed, and at each stroke of the extinguisher enough pressure was developed in the chamber to force the door open. The atmosphere had an acrid odor extremely irritating to the eyes, nose, and throat and in some tests irritating to the skin. The fumes were so dense that objects in the chamber could not be distinguished.

Phosgene, chlorine, and carbon tetrachloride were found in all of the fire-test atmospheres, carbon monoxide was found in all but one, and hydrogen chloride was found in all but three.

The concentrations of phosgene found in the fire-test atmospheres ranged from 0.3 to 16.5 p.p.m. The concentrations found in tests on wood surfaces were greatest (9.6 to 16.5 p.p.m.), those on concrete surfaces were slightly less (0.3 to 16.6 p.p.m.), and those on steel surfaces were markedly less (1.1 to 4.2 p.p.m.).

The concentrations of chlorine found in the fire-test atmospheres ranged from 0.9 to 158.0 p.p.m. The concentrations found in tests on steel surfaces were greatest (36 to 158 p.p.m), those on concrete surfaces were slightly less (27.5 to 58.7 p.p.m.), and those on wood surfaces were markedly less (0.9 to 8.3 p.p.m.).

The concentrations of hydrogen chloride found in the fire-test atmospheres ranged from 0 to 14.4 p.p.m. The amounts found in tests on concrete surfaces were greatest (1.9 to 14.4), those on steel were less (0 to 9.7), and those on wood were least (0 to 4.9). There was not as much difference in the concentrations of hydrogen chloride found in tests on the different surfaces as there was in the concentrations of phosgene and chlorine found.

The concentrations of carbon monoxide found in the fire-test atmosphere were small (0 to 0.03 per cent by volume) except in the tests on wood surfaces, in which the concentrations ranged from 0.03 to 0.20 per cent by volume.

These tests show that when carbon

tetrachloride-type extinguisher liquid is used on burning magnesium varying quantities of phosgene, chlorine, hydrogen chloride, and magnesium fume are produced.

All of the gases formed—phosgene, chlorine, and hydrogen chloride—as well as other gases produced by the fire itself, such as carbon monoxide, are dangerous if present in large quantities. Therefore, to avoid undue exposure, regardless of the extinguishing agent used, fires in confined spaces should be fought with care, preferably from outside the enclosure.

The amounts of phosgene found in the fire-test atmospheres ranged from a trace to 16.6 p.p.m. The amounts of phosgene found in these tests were of the same general order as those found under similar test conditions involving excelsior fires in the experiments previously conducted, considering the fact that the amount of extinguisher liquid was somewhat less in the tests with burning magnesium.

The violence of the reaction between the fire-extinguisher liquid and the burning magnesium and the irritating and obscuring effects of the atmosphere formed were such as to make it unlikely that a user would continue the application of the extinguisher liquid in more than a fraction of the quantities used in these tests.

Excerpts from Bureau of Mines Report of Investigations 3686.

Michigan Fire College Held

The third annual fire college to be held by the University of Michigan extension service, and the fifteenth in the history of Michigan, brought 166 firemen from fifty-six cities and villages of the state to Ann Arbor, July 13-16.

Morning sessions were given over to lectures and demonstrations of problems such as "Civilian Defense in Michigan," "Legal Liability," "The Essence of Service," "Romance of Service," "Fire Experience in England," "OCD Fire Defense," "Handling of Men" and "Firemen, Then and Now."

In addition, two special advanced courses, "Arson" and "Fire Department Hydraulics," were given.

Direction of the entire program was in charge of Chief Harry K. Rogers of the Western Actuarial Bureau, Chicago.

Cooperating with the extension service in this training enterprise, were the Michigan State Fire Chiefs' Association, Michigan State Firemen's Association, Southeastern Michigan Fire Chiefs' Association, Fire Marshal Division of the Michigan State Police, Michigan Municipal League, Michigan Inspection Bureau, Michigan State Fire Fighters Association and the State Board of Control for Vocational Education.

Regional Fire School to Be Held

The first Regional Fire School for Eastern Carolina will be held in Greenville, N. C., at the M. O. Mines Drill Tower on September 15 and 16. This school will be held under the auspices of the Eastern Carolina Firemen's Association, and under the direction of Mr. Sherwood Brockwell, State Fire Marshal and Director of the State Fire School.

SMALL NORTH CAROLINA CITY HAS MODERNIZED DEPARTMENT

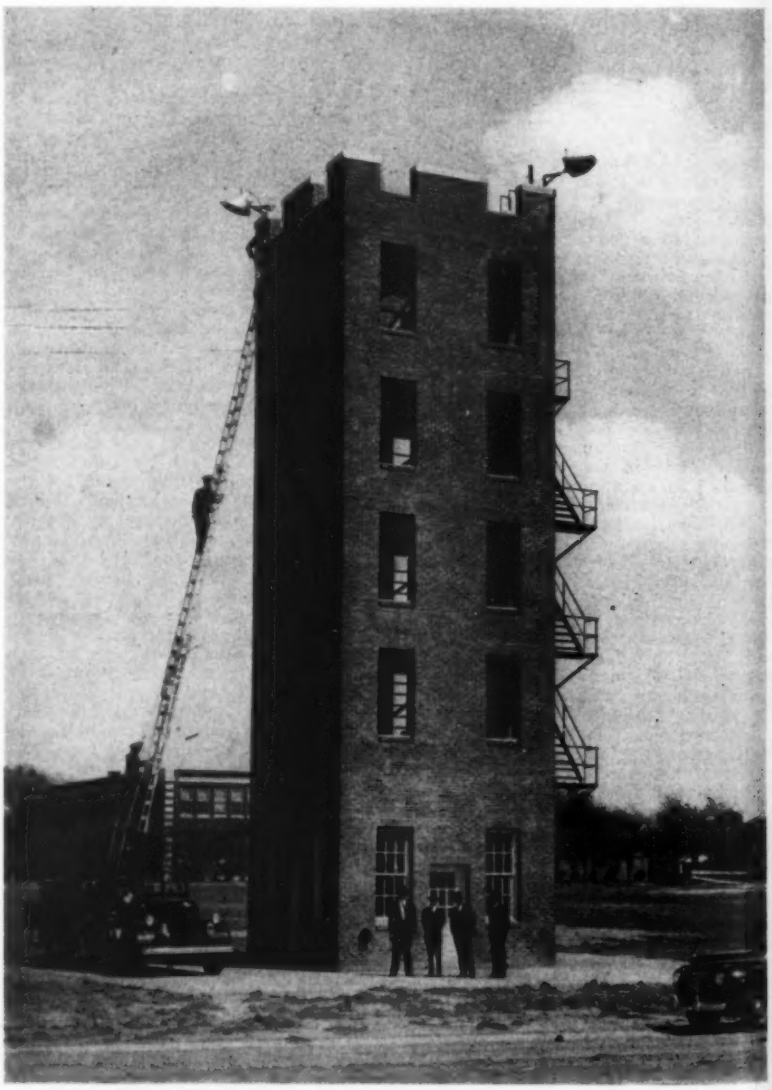
Fully Equipped Drill Tower Assures Highly Trained Crew

THE little city of Greenville, North Carolina, with a population of about 15,000 is the possessor of a fully equipped drill tower that would do justice to many a large city. In addition, it has a fire station that would be suitable in even the largest municipality.

Back in 1928, when George W. Gardner was made Chief of the Department, he set about to modernize his organization.

His first step was to sell the fire department to the citizens, and in this he had encouraging success. The Rotary Club donated $1500 worth of equipment to the fire department gymnasium. A local citizen, M. O. Minges, gave $5,000 for the drill tower. R. C. Stokes gave a factory-built outboard motor boat and S. T. Hooker donated a two cylinder outboard motor to be used for rescue and emergency work on the river which passes through the town. The Elks Club have promised to sponsor a rescue truck fully equipped for the fire department.

In view of the fact that the department has but four paid men and a chief, the inventory of buildings and equipment is most unusual. There are thirty-six volunteers in the department.



The Drill Tower and Grounds of the Greenville, N. C. Fire Department.

The Modern Fire Station of the Greenville, N. C., Fire Department

The fire apparatus in the Greenville Department includes the following: one Peter Pirsch quadruple combination, carrying a 750-gallon pump, a sixty-foot metal aerial ladder (electric), 100-gallon booster tank, 1,000-feet of 2½-inch hose and a Morse-Pirsch ladder pipe.

Rescue Equipment

Some of the small equipment on the unit includes an Atlas one-quarter fold standard life net, Grant nozzle mounted on board, battering ram, Hux bar, sixty-foot rope Davy fire escape, two shut-off nozzles, one fog nozzle, one two-way nozzle with sticks, one 100-foot life line, Baker cellar nozzle, Bresnan distributor and two electric wire cutters.

The department also has a 1,000 gallon Mack pumper with centrifugal-type pump and carrying an eighty-gallon booster tank; a Stutz 750-gallon triple combination unit; and a Leverne-Reo one and a half-ton 350-gallon rotary pumper carrying 120-gallon booster tank. This latter job is equipped with gas masks, a water thief, nozzles, and other minor equipment.

Old Fire Engine Still in Use in Columbia, Cal.

The oldest active fire engine in the country, in service in Columbia, California, is shown in "Cactus Artist," a Universal Person-Oddity, soon to be released throughout the country. The old engine is known as the Papeete.

It was built in Boston in 1852 on order for the King of the Sandwich Islands, now our Territory of Hawaii and the site of considerable modern fire fighting equipment. The Papeete was shipped by clipper around Cape Horn. But the captain and the crew of the clipper caught the gold fever and changed their course to San Francisco where the pumper lay in port until bought by the rip-roaring town of Columbia.

At that time, the town had a population of forty thousand, but the hundred and fifty people who live there today are prouder than ever of the oldest fire engine in the country. And especially proud is John Nash, who is ninety-one years old and one of the oldest fire chiefs in the United States.

Wartime Defense Problems Feature I.A.F.C. Conference

(*Continued from page* 565)

ject to military service because of the present requirements of the Selective Service Act,

WHEREAS, the Fire Service is recognized as the first line of civilian defense,

THEREFORE, BE IT RESOLVED, that the International Association of Fire Chiefs in annual meeting in Chicago, Ill., August 31-September 3, inclusive, 1943, go on record as recognizing the serious situation being brought about by the shortage of manpower and its effect upon the Fire Service.

BE IT FURTHER RESOLVED, that the Manpower Commission be urged to take immediate steps to insure that no more firemen be permitted to be drafted into the military service and that copies of this Resolution be sent to General Lewis Hershey, the Governors of the various states, and to the Director of each State Selective Service Board.

USE OF SIRENS

WHEREAS, the use of fire apparatus sirens has been quite generally discontinued in fire departments in the United States as a result of Army orders which were interpreted as barring their use,

WHEREAS, recent surveys have indicated that many serious accidents have happened to apparatus, including many fatalities, as a result of inability to sound fire apparatus sirens going to fires,

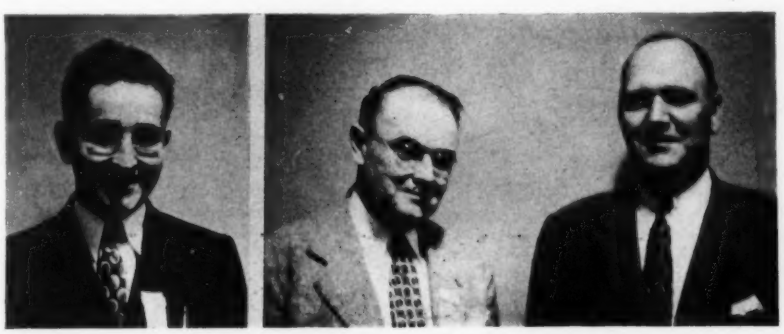
WHEREAS, it is the opinion of this organization that fire apparatus sirens are readily distinguishable from air raid sirens due to the familiarity of the public with the former, and the distinctive difference in sounds produced by the two,

WHEREAS, a delay in responding to an alarm of but a couple of minutes may mean the difference between early control of a fire and its reaching large proportions,

NOW, THEREFORE, BE IT RESOLVED, that the International Association of Fire Chiefs in conferences assembled at Chicago, Illinois, August 31-September 3, 1943, go on record as recommending the discontinuance of bans, either direct or implied, on the use of fire apparatus sirens.

BE IT FURTHER RESOLVED, that copies of this Resolution be sent to the proper authorities in the various Army Corps

Top, (l. to r.) Fred Shepperd, Editor FIRE ENGINEERING; Chief D. J. Brosnan, Albany, Ga.; Alva T. Small, President, Underwriters Laboratories. Bottom—Chief Harry A. King, East Cleveland, Ohio, and Chief Jas. T. Duncan, Jr., Alexandria, Va., President Southeastern Assn. of Fire Chiefs.



Left, George Cumming, Chief Fire Defense Section, Government Bureau, War Production Board, Washington. Right (l. to r.) Roi B. Woolley, Chief, Coordination Unit, Fire Defense Section, Protection Branch, OCD, Washington; Chief Alexis B. Cunneen, Larchmont, N. Y.

areas as well as to the Governors of the various states.

1944 Conference to Grand Rapids

The Conference voted unanimously to accept the invitation from Grand Rapids, Mich., presented by Chief Edward Palmer of that city, to hold the 1944 convention there. The dates will be set by the Board of Directors of the Association at their annual meeting.

Top, Chief Fire Marshal Anthony J. Mullaney of Chicago, with Lieut. Commander Harold J. Burke, U.S. Navy Fire Protection Officer, Washington. Below, Chief Selden R. Allen of Brookline, Mass. (left) congratulates Chief Edward C. Palmer of Grand Rapids, Mich., next year's convention host.

Officers elected for the ensuing year were as follows: President, Chief Art J. Baker, Lewistown, Mont.; First Vice President, Chief Samuel J. Pope, Boston, Mass.; Second Vice President, Chief C. A. Delaney, Lakewood, Ohio; Secretary-Treasurer, Chief Daniel B. Tierney, Arlington, Mass.

Convention Notes

The ladies of the Conference, one hundred and one in all, were guests of Mrs. Katheryn Counts, President of the Oren Fire Apparatus Division, of the Roanoke (Va.) Welding and Equipment Company, at luncheon on Wednesday, September 1. This luncheon provided the ladies an opportunity to become acquainted with each other, and to listen to some fine music by Frank Angell and Chief Frank Bennett, of Durham, N. C. The delightful hostess acted as toastmaster. Mrs. D. B. Tierney, wife of the Secretary-Treasurer of the Association, and Mrs. Dorothy Brigham, Secretary of the Oren Company, spoke at the luncheon.

The Missouri Valley Association of Fire Chiefs met on August 31, during the I. A. F. C. conference, and elected the following officers: President, Chief Charles Slade, eDs Moines, Ia.; First Vice President, Chief John T. Lynch, Kansas City, Mo.; Second Vice President Chief Fred A. Taylor, Colorado Springs, Colo.; Secretary-Treasurer (and Director of the I. A. F. C.), Chief Ray Tiller, Waterloo, Ia.

* * *

The theme of the exhibit of the Waterous Company of St. Paul, Minn., at the Conference, was the great Chicago fire of 1871. Two enlarged color reproductions of rare Currier and Ives prints were shown. One depicted a panorama view of "Chicago in Flames" and the other, "The Burning of Chicago." Both were displayed throught courtesy of the Chicago Historical Society. The Waterous Company displayed three large centrifugal pumps in their exhibit.

* * *

On Friday, the Retiring President, Chief Andrew T. Callahan, was presented with a diamond-studded badge, a gift of the Association.

* * *

Clarence Stewart and Robert Hazard, veteran representatives of the American-La France Foamite Corporation, were voted honorary life members of the Association in recognition of their long-time interest and participation in conferences of the organization.

Surgeons to Postpone Meeting

Due to the national emergency, Dr. Arthur P. Keegan, President of the International Association of Police and Fire Surgeons and Medical Directors of Civil Service Commissions has decided not to issue a call for the annual meeting this year.

Charlotte, N. C., Has Modern Fire School

Charlotte, N. C., not only has a modern fire school, but a beautiful one as well. Built in 1940 at a cost of $52,570.23, of which $27,524.41 was a federal grant under the WPA and $15,045.82 supplied by the City of Charlotte, the fire school was dedicated and named after W. H. Palmer, Chief of the Fire Department.

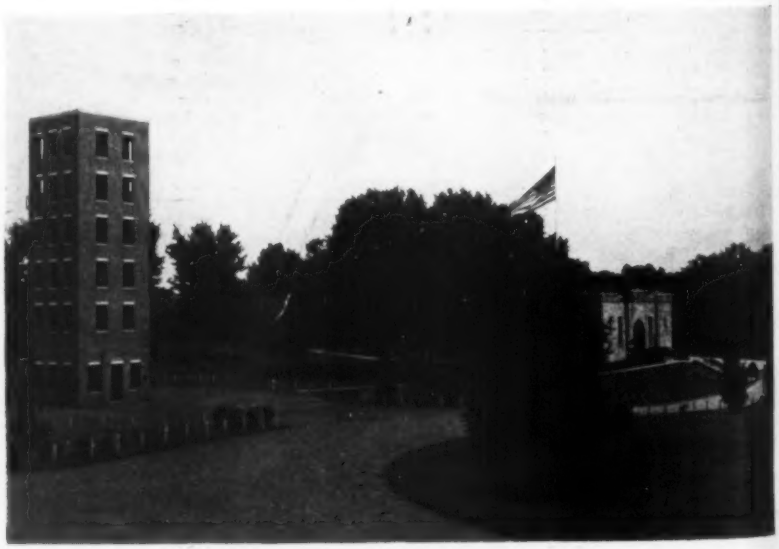
The school stands on a five and a half acre plot of ground. The drill tower is six stories high and twenty-five by twenty-five feet. The school building is fifty by one hundred feet.

When the City of Charlotte decided to erect a drill tower, the firemen on their off-shifts tore down an old incinerator and used the brick for filling in purposes. The outside stone for the school building was salvaged from an old building at a tan-yard which was donated to the firemen who demolished the building and hauled the rock to the present building site. The firemen installed all electric wiring and fixtures, which were donated by the electrical contractors of the city. They all did the landscaping of the grounds, shrubbery and flowers, which were donated by the florists of the city.

The school building is one-story high. On entering there is an office, check room and ladies' room. In the rear of the building there is a stage, the velvet curtain which was donated by the theatre owners of the city, and two dressing rooms, one on each side of the stage. All lighting is indirect. In the building are sixteen living room suites which were given by the furniture dealers. On the lefthand side of the building there is a large fireplace eight feet wide. In the basement are the men's rest room, shower baths, kitchen and concession stand, with eating facilities for sixty persons at the tables. The firemen, when drilling, can cook their own meals.

The drill tower has standpipe openings on each floor and an outside fire escape. It has a permanent rack for a net twenty-five by twenty-five feet. Space around the tower is such that men can work on all four sides at the same time.

This modern and efficient fire school is a fitting monument to a progressive and well thought of fire chief.



View of Grounds Showing Drill Tower and Palmer Fire School

Like the Old Gray Mare, Fire Hose made under WPB restrictions just "Ain't whut she usta be." Except for Army, Navy, Lend Lease and certain War Agencies, NO DOUBLE JACKET HOSE IS AVAILABLE.

Recent surveys taken among leading municipal fire chiefs show that the light weight, single jacket hose now being furnished is not satisfactory for most municipal service. Don't blame the Hose Manufacturers—they're making it as good as they can under war limitations and are as anxious to put their good hose back on the market as you are to have it——So——since

YOUR SUPPLY OF GOOD HOSE IS LIMITED

and since you can't get any more—it's your duty and responsibility to take the best possible care of all the hose you now have.

CIRCUL-AIR THE AIR-CONDITIONING **FIRE HOSE DRYER**

Will provide you with the BETTER WAY to *make good hose last longer—better* because they do a better job in 1/10 *the time* (or less), in ¼ *the space* (or less), with ½ *the labor* (or less). And in new stations they will *lower construction costs* and *improve building design.*

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TYPICAL CIRCUL-AIR USERS

Navy Yards and Air Stations (63)—*Army Camps and Air Bases* (27)—*Marine Air Stations* (11)—*Chemical Warfare Service* (5)—*Ordnance Plants-Arsenals* (12)—*Bell Aircraft* (2)—*Remington-Rand* (2)—*Western Electric* (2)—*Hercules Powder* (5)—*E. I. Dupont—Cannon Mills Co.—Oneida, Inc.—Dodge, Chicago—Chrysler Tank—Ford Bomber Plant—Glen L. Martin—Vought Sikorsky—Consolidated-Vultee—Pratt & Whitney—Eastern Aircraft—Bendix Aviation—Bethlehem-Hingham Shipyards—Consolidated Steel—Packard—Buick—Chevrolet—B. F. Goodrich* (5)—*Caterpillar Tractor—GMC-Diesel—General Electric—York Safe & Lock*

CITIES — TOWNS — VILLAGES — EVERYWHERE

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Note Compact Size—and ease of loading and unloading.

THE CIRCUL-AIR CORPORATION 303 DWIGHT BUILDING JACKSON, MICHIGAN

Eliminate the Hazards of BELATED DISCOVERY and DELAYED ALARMS

A RECENT REPORT of the National Fire Protection Association shows that industrial fires in the first four months of 1943 matched the entire industrial fire total for 1942. Such fires have destroyed food and war supplies, delayed production in war plants and damaged military property.

The National Fire Protection Association further points out that many of these fires would never have reached destructive proportions had the plants been provided with adequate means of detecting blazes in their incipiency, and summoning the fire department promptly.

The hazards of belated discovery and delayed alarms can be effectively eliminated through adoption of A.D.T. Electric Protection Services. For detailed information write A.D.T., 155 Sixth Avenue, New York, N. Y.

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ELECTRIC PROTECTION SERVICES

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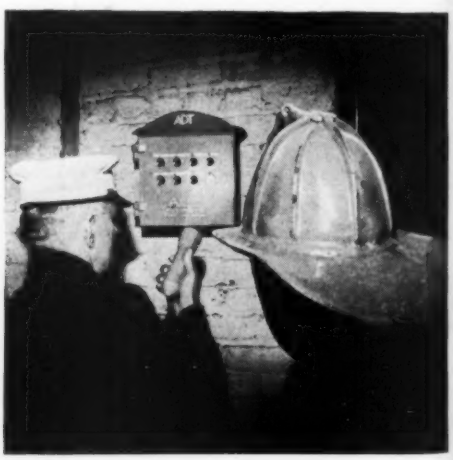
AMERICAN DISTRICT TELEGRAPH COMPANY

155 Sixth Ave., New York • Central Station Offices in All Principal Cities

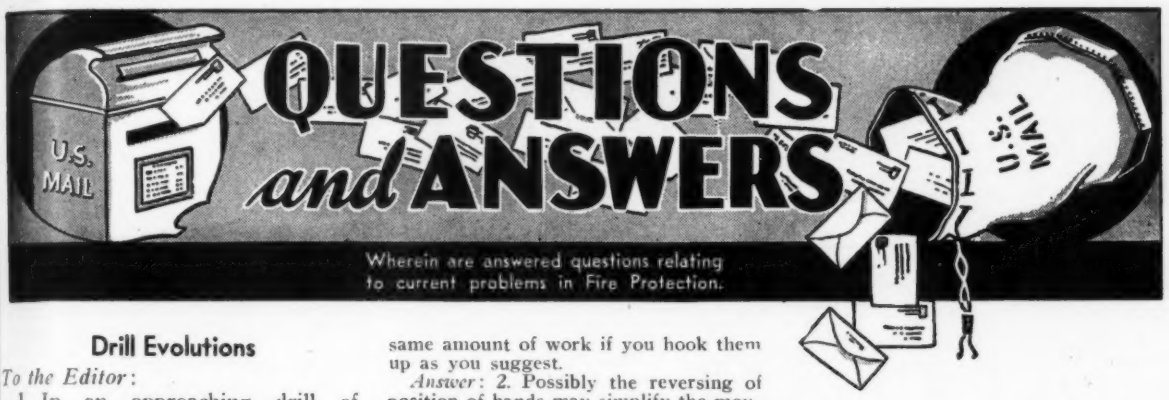
THE A.D.T. CENTRAL STATION maintains continuous electrical supervision of all A.D.T. Systems. The Central Station Staff also provides regular inspections and complete maintenance of the protective signaling equipment on the subscriber's premises.

A.D.T. MANUAL FIRE ALARM SERVICE: Alarm Boxes at strategic locations throughout the premises enable occupants to summon the fire department quickly and accurately without leaving the building.

A.D.T. SPRINKLER SUPERVISORY AND WATERFLOW ALARM SERVICE: Makes the sprinkler system an automatic fire alarm, summoning the fire department direct to the premises whenever a sprinkler head opens. Maintains continuous electrical supervision of shut-off valves and other vital parts of the sprinkler systems to assure constant operating efficiency.



A.D.T. AERO AUTOMATIC FIRE ALARM: (For unsprinklered properties, or in conjunction with sprinklers) Automatically detects fire when it starts, and summons the fire department automatically. Annunciator outside building indicates fire area where alarm originated.



Drill Evolutions

To the Editor:

1. In an approaching drill of auxiliary firemen, they will be expected to relay water. There will be just two 500-gallon centrifugal pumpers engaged and only twenty-five sections of 2½-inch hose available for the entire layout. Would you suggest the simple formula of placing the second pumper two-thirds the distance from first pumper located at the source of supply?

2. There has been considerable controversy concerning the hand holds used in lifting and carrying a 32-foot ladder after it has been raised to a vertical position. It has been argued that if the ladder is to be moved to the right the two men should grasp the ladder with right hands down and left hands up, so as not to block the view as would be the case if the hands were reversed. Yet the reversed position in which the left arm slightly blocks the view is less awkward and easier to accomplish. In your opinion, which is correct?

3. There seems to be several methods of operating a 2½-inch hose line from a ladder. For example, operation from midway on the ladder into a window. There is a rule which reads as follows: "Climb to the rung opposite window sill. Take leg hold on this rung. Pass nozzle through where leg is. Reach over next rung above and attach ladder strap. Hook strap to the next rung above." Is this right in every detail?

4. In splicing a 16-foot ladder to a 32-foot ladder, what position should the top man assume in holding the ladder for the bottom man or climbers? There seem to be several methods. W. F .B

Answer: 1. The arrangement of pumpers in relay you suggest is about the most effective you can secure. The first pumper merely has to overcome friction loss in the hose line and give around ten pounds on the intake side of the second pumper, while the second pumper must overcome friction loss in the hose line and provide nozzle pressure.

Each will be doing approximately the same amount of work if you hook them up as you suggest.

Answer: 2. Possibly the reversing of position of hands may simplify the moving of a ladder, but where departments are trained to grasp the ladder with the left hand up and right hand down, it may cause some confusion to make the reversal.

The method commonly employed, where the left hand is above the right hand, has proved satisfactory where it is used.

Answer: 3. The "Fire Chief's Handbook" (official handbook of the International Association of Fire Chiefs) gives the following instruction regarding placing ladder nozzle in operation: "When No. 1 gets opposite the window sill at the third story, he takes a leg hold on the ladder, or snaps his ladder belt to a rung. He removes the nozzle from his shoulder and places it through the rungs just below the level of his hip, and holds it with his left hand. He then reaches through over the next rung above with his right hand and gets the handle of the rope and places the hook on the next rung above.

"He then gets both hands on the nozzle and calls for water."

The above instructions are for placing a stream in operation on the third floor of a building.

Apparently these instructions coincide with those you quote.

Answer: 4. While some departments employ variable positions for the man holding the ladder, the method most commonly used is for the man to secure a leg hold with the left leg on the ladder on which he stands, and he holds the two beams of the extension ladder with one hand on each beam.

Friction Loss Factors and Flow

To the Editor:

Why is it that the square root of the friction loss factor for hose will give the relative flow of water through the hose? A. R. B.

Answer: In the same size hose, friction loss varies approximately as the square of the velocity of flow. This is a basic rule, and is one which has a great deal of bearing upon hydraulic calculations involving friction loss.

Now if we take several different sizes of hose of the same length and assume that the friction loss per hundred feet is the same in each, we can get the approximate relative flows by taking the square root of their friction loss factors.

As an example, the factor for 2½-inch hose is 1; the factor for 3-inch hose is 2.6; the factor for 3½-inch hose is 5.8.

The square root of 1 is 1; the square root of 2.6 is 1.61; the square root of 5.8 is 2.4.

If we assume the flow through the 2½-inch line of hose to be 300 gallons per minute, the friction loss will be 21.2 pounds per hundred feet.

For 3-inch hose, where the friction loss is approximately 21.2 pounds per hundred feet, the flow will be 500 gallons per minute.

The flow through the 3½-inch hose will be 775 gallons per minute where the friction loss is 21.4 pounds (which is sufficiently near the 21.2 pounds for comparison).

And now let's see what the relation is between the square roots of the friction loss factor and these flows.

1.61 × 300 gives 483 gallons per minute, which is not so far from the 500 gallons flow.

The square root of the factor for 3½-inch hose, namely 2.4, multiplied by 300 gallons per minute gives 720 gallons per minute flow, which is not seriously smaller than the 775 gallon flow referred to above.

Thus the rule you cite holds fairly well.

Test Pressure of Extinguishers

To the Editor:

What pressure is used by the Underwriters Laboratories to test 2½-gallon soda and foam extinguishers?

What is the commercial formula used for the manufacture of charges for foam extinguishers based on bicarbonate of soda and aluminum acetate? E. A. E.

Answer: With regard to the Underwriters' Laboratories' tests of soda and acid extinguishers and foam extinguishers, the cylinders of these extinguishers are tested for one minute at 350 pounds per square inch. This is for the common size of 2½-gallon capacity.

The foam extinguisher usually has a charge made up as follows:

Outer container: Water 89%; Bicarbonate of soda 8%, Foam solution 3%.

Inside container: Water 89%; Aluminum sulphate 11%.

The foam solution or stabilizer, may be made from several different products but the composition of this agent is kept a trade secret by each manufacturer. One of them uses a derivative of soy bean oil; another uses licorice root extract and a third, a glue-like substance manufactured from fish scales.

Our inquiring reporter overhauls the firemanic news of the day

Engine 30 Goes Out Like Sixty!

At 9:30 one night, Eng. Co. 30 and Rescue One, N. Y. F. D. roared out of their firehouse on Spring street, Manhattan, and came to a quick stop right in front of the building. Twenty firemen hurriedly hooked up hose lines, donned gas masks and raced back into the structure. Within a coupla minutes a Deputy and two Battalion chiefs and a flock of other apparatus arrived. It weren't no drill, but the real McCoy. Clouds of acrid smoke were pouring from the station, as a result of a fire in some combustible material which had been removed from a previous fire and stored in the rear of the firehouse for investigation. Uh huh—the Brothers did a real job and kept the flames from seriously damaging their "business house."

* * *

Hot Off the Tape

Frank Parks, H & L 21, much decorated and liked member of the New York Fire Department, missed his grip and fell through the pole hole while responding to an alarm; concussion of brain and injuries to ankle. . . . Hail and farewell (for a short while) to fireman John Carmody, H & L 2, N. Y F. D., who leaves to go into service after less than ten months in the Department—also to Bill Down, whom we likewise know and respect as a live member of the Bell Club (N. Y. C. buff's organization). This 'yere writer took(?) a dispatcher's course in Bronx Fire Alarm Hq. with Carmody, whose dad, incidentally was in the service. . . . The gigantic task of washing the face of the Nation's Capitol building is due. As per usual, the District of Columbia (Washington, to you) Brothers will don their turnouts and wield their high pressure streams for the outside face-lifting or "wash-down" or what-have-you. Leave it to ubiquitous Jerry Daly to pick the news items. His latest, to us, is about Charles Emerick, 14, who was accidentally wounded in the throat when a bullet exploded in a brush fire he was watching in Portland (Ore.). . . . **New York City had 850 malicious false alarms in July, two of them pulling out practically all companies in the high hazard district of Manhattan.** . . . When a group of children skipped rope on the sidewalk, in N. Y. C. rope caught in handle of fire alarm box, jerked it down and brought 8 fire trucks, an Edison Company vehicle, two Battalion chiefs, police emergency truck and a crowd of sightseers. Children said they "were sorry." . . . The Milwaukee Rescue trucks carry a complete and nifty enema set. Furthermore they use it—often (on first aid patients) so well that the victims have been known to moan **"who comes, friend or enema?"** . . . Small matter of a fire didn't deter Mrs. Mary Mattox, New Albany (Ind.) cafe proprietress from carrying on business "as usual." Smelling smoke, she found fire in a stairway, called firemen, then returned to the kitchen to resume baking pies for the cafe, while the Brothers extinguished the blaze. Wunner if they got any of the pastry?—(thanks, Earle Robinson.) **That meeting of the Wisconsin State Fire Chief's Association in Milwaukee was one for the hall of fame. Chief Peter Steinkellner and his lads, working with the Milwaukee County organization sure dished it up as hosts—and how!** CONGRATULATIONS! . . . WHAT FIRE DEPARTMENT HAS THE LARGEST, BEST EQUIPPED SHOPS IN AMERICA? Mebbe we're wrong, but at the risk of protruding our medulla oblongata we vote for Chicago. No wonder that Commissioner Corrigan, Chief Mullaney, Superintendent Gleason and his co-workers, as well as Lieut. Wolff of that city are such consistent advertisers of their own plant! . . . To J. A. R.: **The chief of the Elco plant in N. J. is former captain Sam Phelan of Eng. 10, N. Y. F. D.** . . . Did we mention that the new head of the New York State Fire Chiefs' Association is Chief James J. Corbett, Chief of the Watervliet (N. Y.) fire department? Congratulations, Chief. . . . Firemen of H & L's 13 and 16, N. Y. F. D. risked their lives recently on the copings, ledges and spires of a N. Y. Gothic church to rescue a demented man who had perched at a dizzy altitude. Fortunately, nobody injured. . . . A 100,000 fire razed a hotel and five homes in Damariscotta (Me.) incidentally destroying all the town's rationing records! . . . The Boston Brothers helped end a railroad service tie-up by pumping water into a locomotive that ran dry while passing through the Dorchester district. What'll they be asked to do next? . . . When a train conductor discovered four miles outside the city of Denver (Colo.) that a freight car loaded with lumber was burning, he telephoned ahead to the city fire department, and when the train reached the first city fire hydrant there waited a fire company all hooked up and rarin' to go (thanks JWC). . . . To WER: **Yes, a fire in a forest may be a serious matter especially if it damages a watershed. A burned over watershed usually creates a serious flood hazard—ask the Los Angeles County fire department—Chiefs Turner or Davis, if this isn't so.** . . . The probationers and regulars who use the Portland (Ore.) training school relax after the hot drill in the cool waters of their own swimmin' pool. When not thus used, the pool provides water for pumping operations. . . . Our idea of a scrumptious fire headquarters is that found in Kern County, at Bakersfield (Calif.). And our idea of perfect hosts is Chief Harold Bowhay and Deputy Chief Cooper who head up that County's most complete and unique fire department.

* * *

Fire Still Pursues Him

Fire and explosion, which often have intervened in the life of movie actor Harold Lloyd struck his show-place Beverly Hills estate, destroying the original film of his silent-day comedies that he valued at two million dollars and almost causing his death.

Seven firemen and an employee of the 15-acre tract were overcome by chlorine gas and had to be treated at an emergency hospital. Mildred Davis Lloyd, his wife, reached his side just as he collapsed at the door of the film vault and dragged him to safety. Fortunately the explosion, while severe, was not followed by serious fire. Lloyd, now a producer and 49, was hurt when he was 26 as a movie exploded in his hand. In 1923 a fire hose struck him while he was on a movie set and caused serious injuries. In 1930 a fire caused by a defective incinerator damaged his mansion to the amount of $5,000. The cause of the recent blast was not determined.

* * *

Schroeder Was "Alarmed"

Thanks to the anonymous contrib who sent us the one from Tacoma (Wash.) It's about Immanuel Schroeder, who is deaf, and, desiring to be prompt in reporting for his job, developed an ingenious gadget wherein he hitched his alarm clock to an electric motor which shook Schroeder's bed at the appointed hour — thus awakening him from his sweet dreams.

Well, the gadget seemed O.K. but one day the alarm went off while Schroeder was away. The device operated according to plans, but alas, it shook the bed so hard, and continuously, that friction developed and—you guessed it—a fire started.

Schroeder's house burned down.

* * *

A "Tail" For Mr. Ripley! !

This one comes from Seattle (Wash.) signed just plain "Joe," and it is taken from a Bend (Ore.) paper. It is a eulogy of the beaver. And what a eulogy!—But here it is:

"Tom Merchant and Al Weston, Forest Service workers, praised the beaver today—not as a logger or an engineer—but as a fire-fighter. Merchant and Weston investigating a call that the large warming fires which prevented the new concrete buttresses on the Big River Bridge near here (Bend) from freezing, found three flat-tailed animals busily splashing water on the flames with their flat tails. The work was so effective the fires had to be rekindled, the foresters said."

Boy! the O.C.D.'d better sign these babies up!

* * *

Comes the Lightning!

Out in Merrill (Wis.) lightning struck only once at the Roland Cramnes farm —but that was enough. The bolt hit a tree, plowed a furrow to the house, went up the steps and killed a dog sleeping on the front porch, entered the house and threw an 8-months old baby out of its crib and into another room and finally spent itself after smashing the kitchen sink. And it didn't set fire to the house! Nor was the baby hurt!

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However, regardless of what type of fire hose you have, it should be given the best of care. Replacements are difficult. The chart illustrated here tells you in detail how to protect your fire hose and keep it in top-notch condition, ready for any emergency that may arise.

This chart has been used successfully by fire companies from coast to coast. You will find it valuable and important to you. If you do not now have one, or if you would like additional copies, write today to Eureka Fire Hose, Division of United States Rubber Company, Rockefeller Center, New York, 20. Your request will be filled promptly.

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If you would like more information, write on company letterhead for Bulletin 1993.

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For Practical Discussion of Current Fire Department and Fire Management Problems

MALLEABLE IRON COUPLINGS ON FIRE HOSE

BECAUSE of the restrictions placed on the manufacture and sale of brass fire hose couplings by the War Production Board, fire departments needing new couplings have been forced to purchase malleable iron ones.

Below are given the opinions of a representative group of fire chiefs from all sections of the country regarding the use of malleable iron couplings and their methods of keeping them in good condition.

Readers are invited to send in their comments on this subject or on next month's subject, which appears in the box on the following page. Address communications to Round Table Editor, FIRE ENGINEERING, 24 West 40 Street, New York 18, New York.

Discussion of the Topic

A. J. Mullaney, Chief Fire Marshal, Chicago, Ill.: The Chicago Fire Department purchased 18,000 feet of 2½-inch double jacket rubber lined hose with malleable iron couplings and 10,200 feet of this size hose has been in service in the field for about nine months.

We also purchased 10,000 feet of 3-inch hose, of which 2,300 feet have been in service for about nine months, making a total of about 500 malleable couplings in service for that period.

There is a slight rusting condition on the couplings, but it is overcome by careful inspection and a careful application of oil containing a small amount of kerosene. These couplings are placed closest to the play pipe so that they can be readily disconnected, oiled and recoupled at least twice each month.

John J. Tubridy, Commissioner of Fire, Buffalo, N. Y.: There is no hose in the Buffalo Fire Department with malleable iron couplings.

We have some OCD hose with malleable iron couplings and so far it has been very good. The couplings have not shown any rust.

John C. King, Chief, Hartford, Conn.: We have received 13,000 feet of 2½-inch single jacket and 6,500 feet of 1½-inch single jacket hose from the OCD. This hose has malleable iron couplings. We have used this hose only for drilling auxiliary firemen, and so far haven't noticed any rust. This hose is under the care of the Hartford Fire Department.

Edmund B. Lewis, Chief, Scranton, Pa.: We have had about 1,100 feet of hose equiped with malleable iron couplings in service for a year. Rusting has been slight but has been checked by applying common paint and grease.

Frank Egenreither, Chief, St. Louis, Mo.: We do not have any hose with malleable iron couplings in this department at the present time, due to the fact that we were very fortunate in having a large surplus of hose with brass couplings.

I do remember a complaint from some of our auxiliary firemen about swivel connections that were hard to turn because of rusting. They were advised to use a mixture of Pyrene and graphite, and since that time have experienced no trouble.

Brooks McClure, Chief, Huntington, W. Va.: We have had about forty sets of malleable iron couplings in service for about a year now. These have shown no signs of rust as yet.

Edward J. Cannon, Chief, Norfolk, Va.: The Norfolk Fire Division has used only brass couplings.

However, the various equipment received from the Office of Civilian Defense for use by the auxiliary fire department, is equipped with malleable iron couplings.

We have not used these for any length of time, but in my opinion, these iron couplings are definitely unsatisfactory. Although the original paint is still partially intact on these couplings, I find that they leave a rusty streak on the hose and will undoubtedly deteriorate in time.

Charles DeVleeschower, Chief, South Bend, Ind.: At the present time the only malleable couplings we have in service are those on the OCD hose. We have not noticed any rusting of these couplings.

Joseph A. Kirby, Chief, Dayton, Ohio: We do not have any malleable iron couplings in the Dayton Fire Department other than those on the OCD fire hose and we have not had much experience with them. We have had this hose about a year and a half, but we have used it for training our auxiliary firemen.

We have not noticed any rusting. The lacquer serves the purpose on the outside, but not on the inside. We have had several couplings blow off. We believe the lacquer on the inside causes it. We did notice one thing and that is the malleable iron couplings will not stand the hard use which the blass couplings get. They are easily dented and several have cracked when dropped on the concrete pavement.

Thomas J. Phelan, Chief, Trenton, N. J.: We have not used malleable iron couplings as yet on regular fire hose. Fortunately, we have been able to utilize our old brass couplings which have been attached to new hose. However, on our auxiliary fire reserve we have some OCD hose with malleable iron couplings. They are kept in good order by wiping the couplings with light oil.

Earl W. Swartz, Chief, Harrisburg, Pa.: We were very fortunate to have on hand sufficient brass couplings to equip all new hose which we have purchased recently. The only malleable iron couplings we have are those which came with the hose supplied by the OCD on the auxiliary pumps. To date we have not had occasion to use this hose other than to run the pumps periodically.

Leo J. Urbanski, Chief, St. Joseph, Mo.: We have had malleable iron couplings in service in our department for three months. As yet they have shown no signs of rusting. We use lacquer to check it.

Herman E. Gutheim, Chief, Cambridge, Md.: We have no malleable iron couplings in our department.

HERE IS THE QUESTION

What has been your experience with malleable iron couplings on fire hose:

1. **About how many are in use in your department?**
2. **How long have they been in service?**
3. **Have you noticed any rusting of couplings, and how severe has it been?**
4. **What paint, lacquer, etc., have you used to check rusting?**
5. **What were the results?**

The OCD hose is equipped with them but we have only used that hose once on a test so we have had no real experience with those couplings.

C. C. Jennings, Chief, Tulsa, Okla.: We have about 5000 feet of 2½-inch hose equipped with malleable iron couplings. These have been in service for about six months. We haven't in that period of time noticed any rusting.

Edward F. Dahill Chief, New Bedford, Mass.: We have had about 440 malleable iron couplings in service for six months. They have rusted especially around salt water.

Using oil on female connections and by keeping threads well greased we have been able to check the rusting.

L. M. Funk, Chief, Dallas, Tex.: We have only a few of the iron couplings in the department. These have been in service approximately six months.

Rusting becomes serious if the hose is not cared for after each time used. We see that they are completely dried and oiled, but this has not proven satisfactory.

Malleable iron couplings and steel rings will not stand engine pressures. Couplings blow off consistently.

George C. Winter, Chief, Syracuse, N. Y.: The Syracuse Fire Department thus far has been able to get along without malleable iron couplings. On such hose as we have been able to secure we have installed brass couplings which we have salvaged from condemned hose.

More recently we have been unable to obtain priority ratings for new 2½-inch hose, let alone couplings, malleable or otherwise.

Ambrose Saricks, Chief, Wilkes-Barre, Pa.: We have never used malleable iron couplings in our department. We do have some on hose received from the Government, but as this hose has not yet been put in service, we do not know much about it.

Paul P. Heinz, Chief, New Haven, Conn.: We have about 2,000 feet of 2½-inch hose equipped with malleable iron couplings. These couplings have been in service for about six months.

The male ends of the couplings rusted after the first wetting, to such an extent that it was impossible to couple them. A mixture of powdered graphite and light lubricating oil was used and has proven satisfactory.

R. M. Hitchings, Chief, Flint, Mich.: The only malleable iron couplings we have are those sent here on the single jacket OCD hose. We have some rusting and use Rust-Oleum paint with good results.

C. A. Hart, Chief, San Antonia, Tex.: We have never used malleable iron hose couplings on our fire hose, and therefore are unable to report any experience with them.

All fire hose assigned to the City of San Antonio by the Office of Civilian Defense is equipped with malleable iron couplings, but thus far they have not seen service.

William F. Cowden, Chief, Philadelphia, Pa.: We have 250 2½-inch snap couplings made of malleable iron in service. We have used them for about six months.

Our style coupling will not rust as it has been made rustproof by a coating of metal by the Lally Fire Appliance Co.

J. E. Parrish, Chief, San Diego, Cal.: We have had 908 sets of malleable iron couplings in service for eighteen months. We have noticed only slight rusting. Couplings and threads are wiped with waste slightly dampened with coal oil.

Malleable iron couplings have turned out better than I expected.

A. C. DuRee, Chief, Long Beach, Cal.: We have 192 pairs of 2½-inch and 96 pairs of 1½-inch malleable iron couplings in service. These have been used since October 1, 1942.

Rusting has been very severe.

Frank P. Rivard, Act. Chief Engineer, New Orleans, La.: We have no malleable iron couplings in service in this department. The brass hose couplings are taken from the old hose and transferred to new hose.

C. C. Killian, Chief, Fort Worth, Tex.: We have had only limited experience with malleable couplings here and that is with OCD hose used by the civilian defense units in training.

Rust is very noticeable on iron couplings, and will, in my opinion, be very troublesome if used to any great extent. The couplings will require treating to prevent trouble, which we plan to do if and when we put them in service.

A. Brown, Chief, Birmingham, Ala.: I am glad to say that so far this department has not had to use any malleable couplings.

What we have bought so far we have been able to equip with bronze couplings from discarded hose.

We have about 50,000 feet of 2½-inch and 1½-inch OCD hose with malleable iron coupling, but as requested by C. D. Headquarters we use our reserve hose in training.

William Braaten, Asst. Chief, Tacoma, Wash.: At present we have 8,500 feet of 2½-inch hose equipped with malleable iron couplings in service, of which 7,000 feet was put in service on September 12, 1942 and 1,500 feet on May 1, 1943.

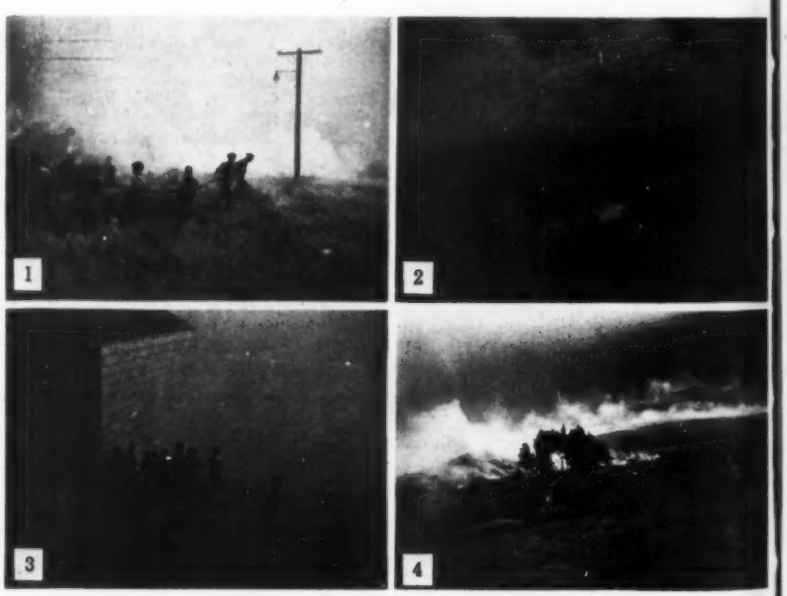
The malleable iron couplings are subject to rusting. While the rusting to date has not been very severe, if allowed to remain on the couplings, it will cause considerable trouble.

To check this we are trying a heavy paste of tallow and graphite. We wire brush the thread and apply the paste with a rag or waste, being careful not

(*Continued on page 602*)

HERE IS THE QUESTION FOR THE NEXT ISSUE

Do you favor the use of the regulation rubber fire coats or do you prefer the waterproof duck or canvas turnout coats? What are the reasons for your choice?



Fighting a Grass Fire in San Francisco

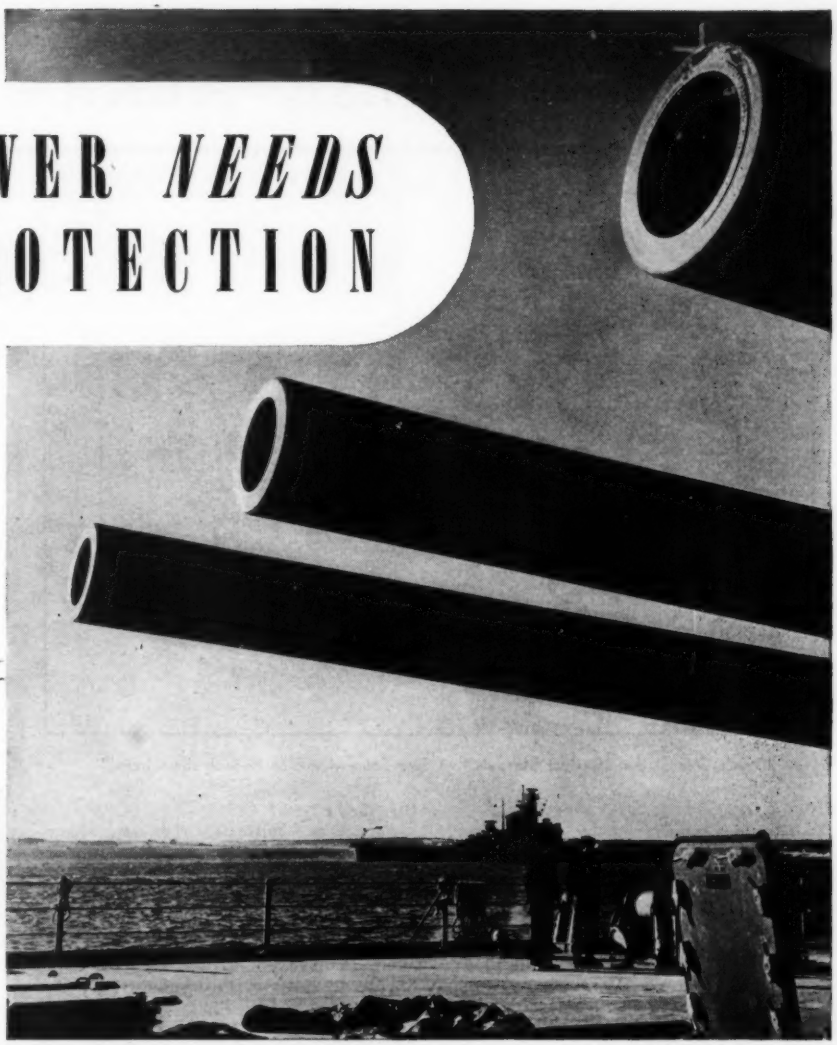
1. A grass fire starts on one of San Francisco's many hills before firemen can get around to burning it off. The Fire Alarm Office, having been told the nature of the alarm, sends a "chemical" company. Actually the apparatus used is a water tank company carrying 450 gallons of water, two reels of one-inch rubber hose and equipped with an 80 gpm pump. Here firemen, aided by neighborhood youngsters, drag one line toward the fire which has crept uncomfortably close to some homes and fences.

2. The youngsters gather around the rig as it comes back from filling the tank at the nearest hydrant. They're ready to help stretch the line again.

3. Hills are steep and dry grass is slippery, so it takes a lot of elbow grease to drag lines up hill. These youngsters pitch in with a will. Their only reward is working with their heroes, the firemen.

4. An unscheduled grass fire here has crept over the hill, is heading toward these homes high on a hill in San Francisco. But the firemen are on the job. Their water tank apparatus is parked in front of the house at the right and they have a line stretched around the side of the house. They've started a backfire and are watching it carefully. When the fire coming over the ridge hits the already burned spots, it will die out for lack of fuel. Grass fires out of control can sweep down on an unsuspecting city and do great damage such as was done in Berkeley in 1923 and in Mill Valley in 1929

FIRE POWER *NEEDS* FIRE PROTECTION



Three of the nine 16" guns of a new U. S. Battleship—A "Floating Fortress"

Official U. S. Navy Photograph

Battleships bristling with armament for enemy destruction still need fire protection.

Much of the damage to the Navy's fighting craft has been from fires caused by enemy action. Quick, efficient control and extinguishment of ships' fires, especially difficult oil fires, is essential to protect the *fire power* of battleships as well as lives and property.

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FALSE ALARMS

"He's One of the Smartest Mascots I've Ever Seen—Used to Be with the Circus!"

Sleepy-Head

The wife awakened by a fire siren, poked her hubby, who was a member of the Department, and said, "Wake up, darling, I think the whole town is on fire. The sky is all lit up. Wake up, wake up!"

Hubby came to slowly, indolently arose, sleepily felt the four walls of his room, yawned and stretched and murmured to his spouse: "The walls are still cool," and he returned to bed.

An O.P.A. pamphlet on how to make girdles last longer contained this phrase: "It can best be removed by a good strong yank." In subsequent editions this was changed to: "It can best be removed by a good strong jerk." If you're up on your slang, you take your choice.

Progress

"I am Brave Eagle," said the Red Indian chieftain, introducing himself to the paleface visitor. "This is my son, Fighting Bird.

"And here," he added, "is my grandson, Four-Engined Bomber."

"Did you have the car out last night, son?"

"Yes, Dad. I took some of the boys for a run."

"Well, tell the boys I found one of their little lace handkerchiefs."

Important Question

Mrs. Housewife barged into the grocery store and briskly asked: "Remember that cheese you sold me yesterday?"

Grocer: "Yes, madam."

Mrs. Housewife: "Did you say it was imported or deported from Switzerland?"

The "God's Truth"

An air ace tells the story of a New York City resident who went to the sugar-rationing board and attested: "My wife has no sugar at all in our house, not an ounce of it."

"Remember, now, you're swearing to this," the chairman of the board warned him. "You've got to tell the truth."

The applicant hesitated, and repeated, "Gotta tell the truth, eh?"

"Yes, or you'll go to jail," he was warned.

"In that case I'll tell you the truth. We ain't married."

"What is the deaf and dumb carpenter so frantic about?"

"He just hit his thumb with a hammer, and can't find his pad and pencil."

Impression

She was young, fair and pretty,
  She's a girl I'll never forget,
We were in a pullman sleeper
  When, by accident, we met.

Yes, I always shall remember well
  The girl and time, and place;
I was coming from an upper berth
  And stepped upon her face.

—*Jack-o'Lantern*

Out

"Who was that lady I saw you out with last night?"

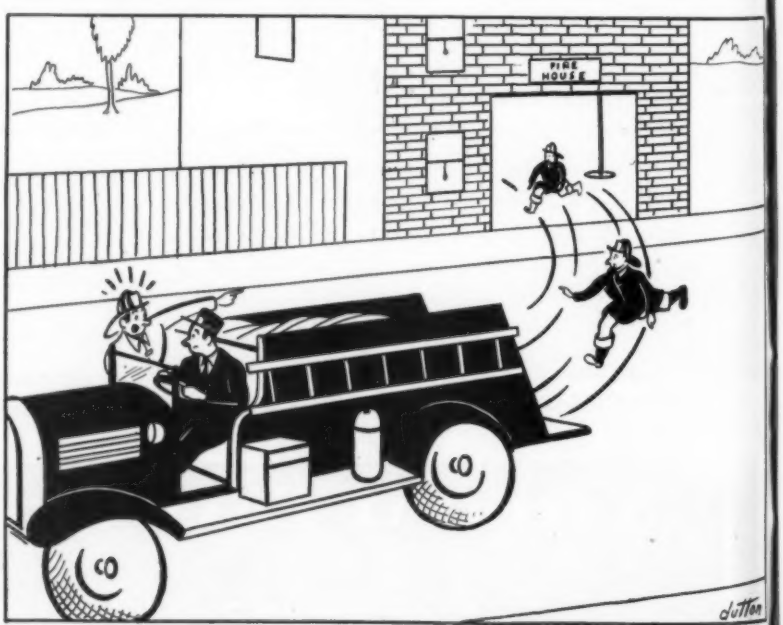
"I wasn't out; I was just dozing."

—*Owl*

Disagreement

Way down in Georgia a traveling man found himself stranded for the night and in his rambles around town noticed there were two Baptist churches. He asked a colored man why there should be two churches of the same denomination.

"Well, boss, Ah'll tell you," said the informant. "Dey jus' can't agree. One of the churches believes dat Pharaoh's daughter found Moses in de bullrushes. De odah church claims dat's what she sez!"



"You're Too Anxious Joe—We've Left Casey and Walsh Again!"

Motorized Fire-Trucks Are Fast—BUT

RCA Radio Is Faster

Speed is the most vital factor in fire-fighting.

Modern fire-alarm systems get word of the fire to the firemen—fast.

Modern motorized fire-trucks get firemen to the fire—fast.

And whether the fire apparatus is on the run or at the fire, *RCA Emergency Radio Communications gets information between headquarters and trucks—or between truck and truck—instantly.*

RCA Police Radio Systems for years have helped fight crime—and municipal executives were quick to realize the value of similar equipment in fighting fire.

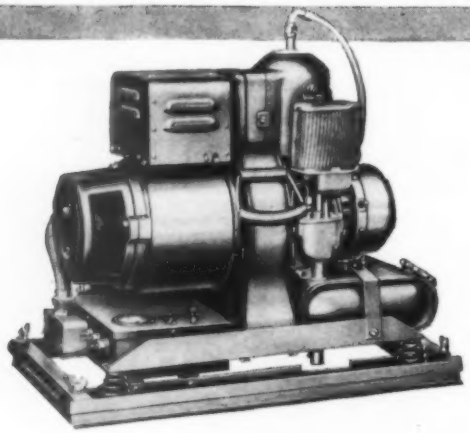
Now, of course, RCA manufacturing plants are working night and day at top capacity, producing radio equipment to help fight Nazis and Japs.

But in RCA laboratories the work goes on. And just as soon as war conditions permit, RCA will supply fire-fighters with better radio equipment and service than ever before. *RCA Victor Division, Radio Corporation of America, Camden, N. J.*

RCA

RCA EMERGENCY COMMUNICATIONS EQUIPMENT

FOR VICTORY BUY UNITED STATES WAR BONDS AND STAMPS



HOW YOU CAN GET

NEW!

HOMELITE

PORTABLE GENERATORS

Sooner than you think!

This war doesn't have to last forever. We can shorten it considerably. We can get it over quickly . . . if we do all that is expected of us. This means investments . . . heavy investments . . .in War Bonds. For the more money we can turn into equipment for Victory, the sooner we can get back to the delivery of equipment you need for your work . . . Homelite Portable Generators, for example, better than ever before.

★ ★ ★

ARMY E NAVY

Every Homelite worker is buying War Bonds regularly And every Homelite worker is doing everything possible to speed Victory through ever-increasing production.

HOMELITE CORPORATION

PORT CHESTER, NEW YORK

WHAT'S BURNING?

THE following list includes fires of $50,000 loss and over in the United States and Canada, for the month of August, 1943. These figures, compiled from the telegraphic reports, are based on estimates made at the time and are subject to later revision and subsequent revision. Taken as a whole, however, they are an approximately correct view of the losses incurred. The figures represent losses in thousands of dollars.

Month Ending August 31	Losses in Thousands of Dollars
Ozark, Ark.—Ozark Canning Co. plant	425
Cambridge, Mass.—Bldg. housing the Lechmere Square Garage, Boston & Maine Tranportation Co. garage and the Scully Signal Co. damaged	60
Baltimore, Md.—Three bldgs. damaged	80
Ontario, N. Y.—S. J. Huxley Canning Co. damaged	170
Salem, Ore.—Frank Doolittle service station and contents of adj. bldgs. destroyed	50
Beverly Hills, Cal.—Film vault of former film star Harold Lloyd at Benedict Canyon Drive estate, destroyed	1700
Salem, Ore.—Salem Supply Co. destroyed	50
Appleton, Wis.—Wisconsin Rendering Co. plant destroyed	80
Canon City, Okla.—Gibson Lumber Co., 40-room Colorado hotel, four residences and 100,000-gallon water tank of Rio Grande Railway destroyed	125
Milton, Del.—Four-story plant of the Diamond State Roller Mills destroyed	215
South Bend, Ind.—Radio Equipment Co. damaged	150
Wyandotte, Mich.—Chemical plant of Pennsylvania Salt Manufactuirng Co. destroyed	4[illegible]
Knoxville, Tenn.—Cockrum Lumber Co. plant damaged	17[illegible]
Floresville, Tex.—Three store bldgs. owned by J. C. Merchant, damaged	65
South Paris ,Me.—Burnham & Morrill Co. dehydrating plant destroyed	215
Fort Worth, Tex.—Clubhouse of the Colonial Country Club destroyed	80
Entiat, Wash.—Entiat Hotel damaged	50
Green Bay, Wis.—Standard Lumber Co. plant destroyed	125
Fresno, Cal.—Houts & Box Lumber Co. damaged	50
St. Paul, Minn.—A quarter of a mile of box cars and a dozen repair sheds in the Great Northern railway yards destroyed	215
Sumter, S. C.—Block of stores, housing radio station WFIG, W .B. Burns & Sons hardware store, Mitchell's drug store, Little Star Grocery Store, Sumter Barber Shop and offices of Dr. C. H. Andrews destroyed	80
Gulfport, Miss.—Extractor and refinery of the Phoenix Naval Stores Co., Inc., destroyed	89
Fredericksburg, Va.—Bldgs. and contents of the City Bakery Co., Inc., destroyed; three adj. bldgs. damaged	60
Sandpoint, Ida.—Sandpoint Box Co., Springs Shingle Mills, destroyed	50
Los Angeles, Cal.—Theatre bldg. destroyed	80
Newark, Dela.—A. & P. Store destroyed	50
Cedar Rapids, Ia.—Office and yard of Home Lumber Co. and Julian Hughes National Lumber Co. destroyed	50
Los Angeles, Cal.—Box and crate factory of the Rehig Mfg. Co. destroyed	125
Doylestown, Pa.—Dairy refrigeration plant at Warminster Farms destroyed	50
Snohomish, Wash.—G. N. Turner Canning Co. destroyed	50
Tulsa, Okla.—Plant of Dehydro Co. damaged	170
Dixon, Ill.—Two-story business bldg. housing the Copinn Business College and the Scott Novelty store, damaged	80
Fort Deposit, Md.—Two-story frame administration bldg. of the service school at the Bainbridge Naval Training Station damaged	50
Alvardo, Tex.—Walton Drug Store and Bus Station, Western Auto store, post office and cafe destroyed	50
Lockport, N. Y.—Warehouse of United Paperboard Co. destroyed	50
Middlefield, Ohio—Portion of the plant and equipment of the Johnson Rubber Co. destroyed	80
Inglewood, Cal.—Jim Dandy Market destroyed	125
Corpus Christi, Tex.—Nueces Hardware Co. bldg. and contents damaged	250

CLASSIFIED ADVERTISING

Bids Wanted, For Sale and Help Wanted $5 per inch. Position Wanted, $2.50 per inch

WANTED

Jobbers to sell Morning Pride Firecoats, with Wing Freedom Sleeves, Chest Protector, Wool Wristlets, Synthetic Rubber. Write Morning Pride Mfg. Co., 1986 Home Ave., Dayton, Ohio.

Chicago, Ill.—Modene bowling alleys and six stores damaged	100
Detroit, Mich.—Plant of Michigan Macaroni Mfg. Co. damaged	80
West Columbia, Tex.—W. Columbia high school bldg. damaged	60
Washington, D. C.—W. A. Pierce Lumber Co. destroyed	50
Saxapaw, N. C.—Sellars Mfg. Co. plant damaged	50
Salem, Ore.—Salem Supply Co. plant damaged	50
Rockdale, Tex.—Bredit & Haley Produce Co. plant and entire Coffield block business houses destroyed	250
Seattle, Wash.—Sand Point Country Club destroyed	50
Klamath Falls, Ore.—Long Bell lumber mill destroyed	50
Vancouver, B. C.—Two top stories of Army and Navy Dept. Store damaged	225

Naval Barracks Burn

Two barracks and a kitchen of the Navy Training Station at Tanforan Race Track, a few miles south of San Francisco, were destroyed by fire of undetermined origin the night of June 21.

The one-story barracks originally were built to house evacuated Japanese when the track was being used as an assembly center.

Navy and San Bruno firefighters extinguished the fire. No estimate was made of the loss.

BOB GREENOCK

President Designates Fire Prevention Week

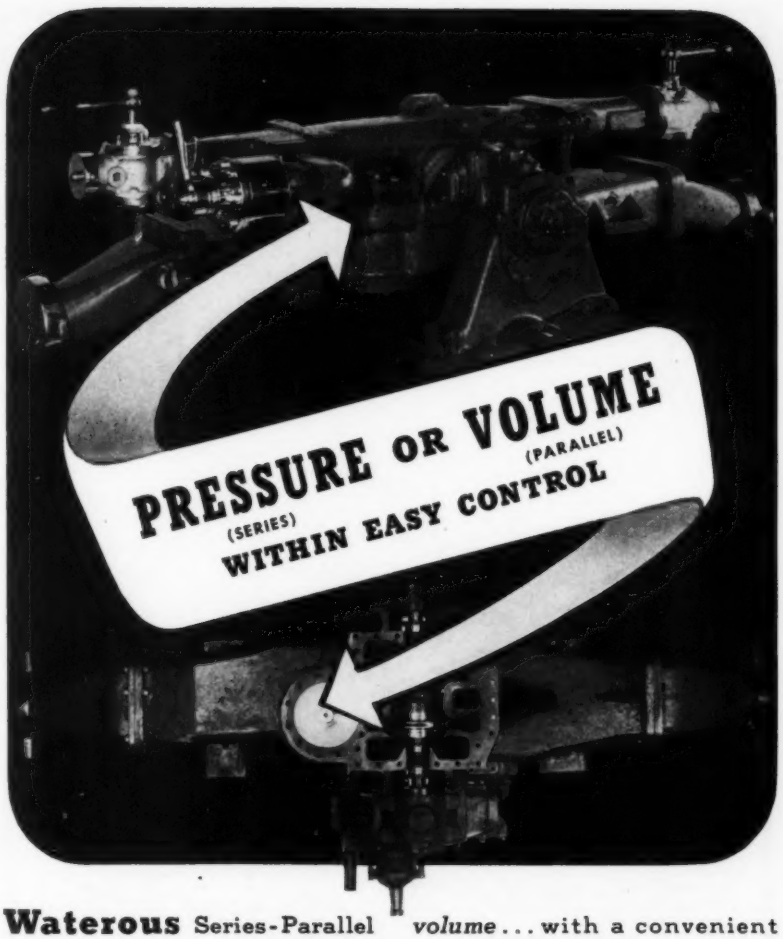
President Roosevelt has designated the week starting October 3 as Fire Prevention Week and declared that destruction by fire in this country since Pearl Harbor had been comparable to the damage caused by enemy bombs in England in the first two years of the war.

"I earnestly request the people of the country," he said in a statement, "to take unusually active measures during that week, and throughout the year, to conserve our human and material resources from destruction by fire."

Asserting that the "war program is menaced by an alarming increase in preventable fire losses," the chief executive said the losses were as real as if wrought by enemy bombers or saboteurs.

"These preventable fires," he said, "are being measured in thousands of workers killed and disabled; vast destruction of critical raw materials, food and other vital supplies for our armed forces and civilian population; the ruin of war plants, factories, homes and machinery—in many cases for the duration of the war.

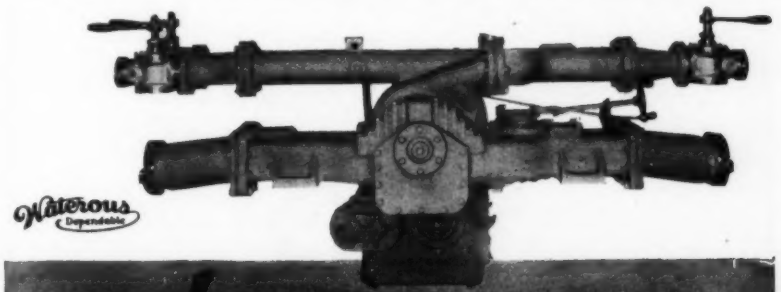
"Fires are bringing costly delays in the production and transportation of airplanes, ships, tanks and guns—delays that mean a postponement of victory and the lives of many of our men on the fighting fronts."



Waterous Series-Parallel fire pumps are designed for a wide range of duties, such as are required in fire fighting service. SERIES operation for *high pressure;* PARALLEL for *volume* . . . with a convenient turn of the Transfer Valve.

Typical WATEROUS quality is built into every detail. Specify WATEROUS on your fire apparatus.

WATEROUS COMPANY • ST. PAUL, MINNESOTA



WATEROUS

CENTRIFUGAL-ROTARY FIRE PUMPS

Ask for this book

Tells you how to take care of small tools-Bolt Clippers, Files, Taps, Drills, etc. The boiled down facts to help you get the most out of these tools-use, wear, repair and selection. Handy pocket size. Just ask on a post card for-Porter's Tool Maintenance Book it's FREE

REG. U. S. HKP PAT. OFF.

PORTER CUTTERS

BOLT CLIPPERS — AUTOBODY REPAIR TOOLS — PRUNERS

H. K. PORTER, INC., 410 ASHLAND ST., EVERETT, MASS.

WAR FARE

Alarms and Discussions Clipped and Culled from the War News of the Day, of Interest to the Fire Service.

Sirens Coming Back Into Their Own!

Ever since the Eastern Comman ruled that sirens must not be used o emergency vehicles because of possibl confusion between them and air rai alarms, there has been the Old Nick t pay. Swarms of protests, some occa sioned by accidents to apparatus an injury to men, impeiled the Army t issue a relaxing order permitting th use of sirens on fire trucks under certain conditions. Well, some chiefs inter preted this as meaning *any* condition and went right back to their sirens. Others, not wanting to risk offending the Army, adhered to the original ruling. Among these was the District of Col umbia F. D. (Washington, to most o us), Here the Department is fernins the Army and the Government. S Chief Stephen Porter took no chance o being scolded for getting out of line Then, in August, a confusion between H & L No. 1 of the District and a van resulted in the death of a fireman, E. L Owen, and injuries to other persons Result is, the District Commissioners threw overboard all rules and orders the Department to restore their old sirens.

Even more epochal is the news tha in the same month, Fire Commissioner Corrigan and the Mayor of Chicago or dered sirens replaced on all Chicago fire apparatus. This city has long boasted that its record of accidents to apparatus has been lower since removing the sirens than when they were used. Well, acci dent loss or no, the sirens seem to be coming back into their own.

* * *

Overtrained?

One of our anonymous contribs' sends us an item about a happening in Albu querque (N. M.), which says:

"Maybe the Albuquerque Home Defense Unit just overtrained. OCD Director Chester Bebber reported a fire truck roared through suburban streets, siren screaming. Members of the Defense Unit within earshot immediately blacked out their neighborhoods.

Some wardens, say we!

* * *

Sabotage?

One of a number of multiple alarm fires in New York City gutted the 17th floor of the Pershing Square Building, opposite Grand Central Terminal, which housed the offices of the American Air lines. Valuable films, among other rec ords were destroyed. Although air lines officials declined to comment, it is reported that efforts are being made to determine whether or not the fire and destruction of the highly flammable gov ernment films was due to sabotage. The intense heat from the burning films it is said, forced firemen to work from standpipes on the floors above and below the fire.

* * *

Let Us S-Pray

The Brothers are wondering wha next! Firemen have been called fo

nearly every sort of job under the sun, but seldom to **throw water** in a drought! Uh huh—the latest comes from Maryland, and the District of Columbia, where the worst drought in years is killing Victory gardens and vegetation generally. Well, in Hagerstown (Md.) the fire department has been ordered to fill empty cisterns from nearby streams. In Chevy Chase and other Montgomery County places, ferninst the District of Columbia, the fire departments have been ordered to put auxiliary pumping equipment to work, spraying the arid Victory gardens of the area. This may be of little good to the OCD pumping equipment, but it will at least give the auxiliary firemen some workouts—and, who knows, perhaps cool 'em off.

* * *

Hot Off the War Ticker

Fire in San Juan (Puerto Rico) destroyed two wings and damaged a third of nearly-completed naval hospital—cause unknown. . . . Well, well, Collier's has just discovered that there is a "new fire-hose nozzle in use on American naval vessels which changes water into a fine, smothering "waterfog." They've got a good press agent in the navy! . . . At this writing U. S. war construction, we're told, is 80 per cent finished—also, that there is over ONE BILLION dollars worth of Federal Housing developments already built, of which 80 per cent is of flammable construction. . . . OCD auxiliary pumping equipment and auxiliary firemen were features of large parades and exhibitions in Washington (D. C.) and Seattle (Wash.). It's interesting to know that while the Eyeties are yowling over the destruction of *one* of their Churches, Axis airmen according to Herbert Morrison have destroyed or damaged over 13,800 churches, monasteries and other religious buildings in Great Britain alone. The list includes 4,100 churches, 23 of them designed by the famed Christopher Wren. . . . Residents of Garden City (L. I.) underwent machine gun strafing with Long Island Railroad station, tennis courts of Garden City Casino and grounds of the Cathedral of the Incarnation (famous L. I. show place) in the line of fire. Just an accident, according to Mitchel Field officials, when machine gun of plane being readied for flight, went off by accident . . .

James Lamb, 54, of Berea (Ky.) saw a 160-lb. "live" shell slip from a conveyor at the Blue Grass Ordnance Depot and fall toward the floor, four feet below. Twenty workers watched, petrified with horror, as Lamb dived and made a lucky catch of it 6 inches from the floor, smashing his hand against a wall in the effort. . . . Looks like New York City policemen and firemen will receive a $450 bonus to meet wartime higher cost of living. . . . An unannounced air-raid drill in Nassau County (L. I.) at 2:30 A.M. without the usual confidential yellow warning elicited loud wails from the wardens. . . . British art treasure, worth more than 375 millions of dollars is stored underground in secret places believed secure from bombing. No—we won't tell you where. . . . County Fire Chief Spence Turner, Los Angeles County, has asked Board of Supervisors to "freeze" his firemen on the job. Armed forces and war industries have taken so many of his firemen he can't insure adequate protection unless the raiding of his ranks is stopped. Many other chiefs are in the same pre-

Midwestern Fireman's Suit

Combination Suit: Coat and Pants With Detachable Linings

Special combination suit of Midwestern Rubberized Coat and Bunker Pants, with detachable wool linings. Flexible elastic inner sleeve for wrist. Keeps out water, cold and sparks. All Midwestern coats are so equipped. The coat with Bunker pants below are Midwestern's outfit No. 101.

1—Adjustable collar strap.
2—Reinforced collar band for lining.
3—Lining attached with quick snap buttons.
4—Corduroy lined collar.
5—Reinforced, double stitched seams.
6—Reinforced by rivets at points of strain.
7—Vertical seams in sleeve shoulders.
8—Inside of fabric, heavily napped cloth.
9—Midwestern safety snaps.
10—Two outside pockets.
11—Midwestern's Special Vanitex fabrics.
12—Lining edges reinforced with rubberized fabric.
13—Wool detachable lining.
14—6-inch storm flap.

BUNKER PANTS

1—Lining held by snap buttons.
2—Rubberized fabric belt in lining.
3—Eight suspender buttons.
4—Safety snap on belt.
5—Two side and one hip pocket.
6—Wool lining.
7—Reinforced adjustable belt.
8—Midwestern's Special Vanitex fabrics.
9—Wide protecting flap.
10—Reinforced by rivets.
11—Cloth crotch pads for pole sliding.
12—Reinforced double stitched seams.

This wool lining can be added to any Midwestern Bunker Pants at a small additional cost.

See your local Midwestern Distributor for prices and literature, or write the factory.

BUY WAR BONDS

The World's Best Investment

MIDWESTERN MFG. CO.

MACKINAW, ILLINOIS

Write for literature, price list and material samples.

WARTIME FIRE CALLS—ARE VERY Important

Fire Departments must be ready for all-out protection when the fire alarm sounds. During wartime there is always the dark, hidden threat of sabotage, which, when added to normal fires, places an added burden on the undermanned fire departments.

An enemy saboteur works silently, and when he strikes with fire it may involve serious damages, plus loss of valuable production schedules. Such situations make it necessary that firemen be equipped with the best gas masks, especially in the industrial sections.

In all parts of this country, firemen are receiving dependable service and protection from their Acme FULL VISION All-Purpose Type FD Gas Masks. These masks have withstood all manner of tests under actual fire conditions. Experienced firemen know that it pays to use ONLY the best gas mask, thereby assuring them of Safety, Comfort and long Service.

Acme Gas Masks are manufactured of dependable materials that are thoroughly tested to assure gas-tight fit to any face. The wearer receives protection against Carbon Monoxide, Acid Gases, Organic Vapors, Ammonia, Toxic Smokes, and Fumes.

For All-Purpose Protection — always specify and use Acme FULL VISION All-Purpose Type FD Gas Masks and Canisters.

WRITE FOR PRICES and LITERATURE

ACME PROTECTION EQUIPMENT COMPANY, INC.
Manufacturers
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SIRENO
SINCE 1908 — THE PIONEER COMPANY
EXCLUSIVELY MANUFACTURING SIRENS
PRECISION MADE • LONG LIFE • UTMOST IN DEPENDABILITY
THE SIRENO COMPANY, INC.
214 WILLIAM STREET

dicament. . . . A contrib' from Calif. sends us delayed item about the Navy Patrol blimp which, near Hollister (Calif.) went on a sudden joy ride, spilled out its crew of nine, bounded over hill and dale for a dozen miles before it was captured. No fires but one severely and three less seriously hurt. . . . Orchids to the two soldiers and three coast guardsmen who braved flame and smoke to rescue seven elderly women, in two-alarm fire that swept Surfside Hotel, Atlantic City. . . . Lawrence Sackel, 32, was sentenced to 60 days in Essex County jail (N. J.) on charge he used physical force to make his wife put out a cigarette she was smoking in window of their apartment during a State-wide blackout. . . . Capt. H. C. Whitehurst, District director of civilian defense, Washington (D. C.), and Chief Stephen Porter of the District F. D. have appointed Battalion Chief Carlisle S. Peterson of the District F. D. as chief of the auxiliary fire service. . . . Fourteen civilians and crew of big plane were killed when an RAF bomber crashed into a public house in Winslow (Eng.). . . . A floating mine excited curiosity of some men on shore of Donegal (Ireland) who monkeyed with it. It exploded, killing 17 men and injuring 4. Explosion was heard for 50 miles.

* * *

O C D Didn't Have to Pretend

Out in San Jose (Calif.) G. E. Arnold, directing a Santa Clara County air raid defense drill said: **"We'll simulate a fire over there"**—and just as he pointed to the scene of his intended fire drill, the Herschel Canning Co., flames burst from behind the buildings.

The fire department took charge. The air-raid defense drill had to pretend there was a fire somewhere else.

* * *

Wanted, Soothsayer Fire Chiefs

We've heard of the goosebone prophets, and the fire chiefs who could tell whether or not they were gonna get a "worker" by the pain in their big toe, etc., but the OPA, it seems, is expecting fire chiefs to be far more of a soothsayer than that. According to Chief Jack Bone of the Anderson (S. C.) F. D. a fire chief needs a crystal ball when it comes to filling out the required forms sent out by OPA to facilitate(?) fire departments getting gasoline for their trucks.

According to Chief Bone you've got to ponder the following questions: **How many trips do you expect to make? How much gasoline do you anticipate using? How many miles do you expect to travel?**

* * *

Draft Ends Bachelor Team

Three of our readers sent us this item—

The annual baseball game between the single and married men of Easton (Penn.) Liberty Hose Company was canceled for the first time in fifty-four years in July. The bachelors were almost wiped out by the draft, and there just weren't no team of single men capable of taking the field.

* * *

We're at War!

We don't need an enemy bomb raid to convince us that we are at war—at least those of us located where these events took place:

DALLAS, TEX.: Twenty-three soldiers and firemen were taken to hospitals over-

come by chlorine gas while fighting a fire that destroyed a chemical factory adjoining Love Field. Army authorities did not disclose how many of the injured were soldiers or firemen. Soldiers and civilians wearing gas masks fought the blaze for an hour. The fire broke out in the Blanco Products Co. factory, which manufactures chlorine bleach. The plant is almost surrounded by the Love Field barracks.

OLEUM, CALIF.: Two large tanks, filled with over 1,400 barrels of oil at the Union Oil Storage Plant near Crockett (Calif.) burned, threatening the nearby huge storage deposits of the company.

ELGIN FIELD, FLA.: Two officers and 15 enlisted men were killed and 51 persons injured in an accidental explosion, it was announced by the Army. Reports were that the men were clearing stumps.

MARYVILLE, MICH.: Fire that got out of control in unit of Dow Magnesium Corp.'s new $20,000,000 plant here caused damage estimated at $500,000. Favorable wind helped keep fire away from other sections. One volunteer fireman suffered leg injuries in a fall.

WOLF LAKE, IND,: With one youth killed, two others injured, federal and local police sought persons who secreted three cases of high-powered fireworks on an island here. Three youths had waded out to the island when one tossed a cigar butt in one of the cases which, it was learned, had been stolen from a closed fireworks plant on west bank of the lake.

MAMARONECK VILL., N. Y.: A fire that did damage estimated at half a million dollars destroyed a lumber yard, mill warehouse filled with material on government order and other structures, necessitating combined fire fighting of departments from Town of Mamaroneck, Rye, Harrison, Larchmont and Port Chester, New York, as well as Mamaroneck Village's six companies.

WENDOVER, UTAH: An Army bomber crash-landed on the Western Pacific tracks near here and 10 minutes later a freight train plowed into wreckage, derailing and piling up 26 cars, tearing up 200 feet of rail. One flyer was killed, 10 injured. No fire—luckily.

FREDERICKSBURG, VA.: Collision between an Army bus and wholesale grocery truck in the A. P. Hill Reservation caused death of four men, three being soldiers. The driver of the truck died later from burns, while two others were severly burned.

July Fire Loss

Fire losses in the United States in July were $25,016,000, according to the estimate given out by the National Board of Fire Underwriters recently. These estimated losses, under fire policies, are on an incurred basis, including an allowance for unreported and uninsured losses.

The loss in July was seven per cent less than in June and nineteen per cent more than in July, 1942. The losses for the first seven months were $24,000,000. more than for the corresponding period in 1942.

George W. Angell in Service

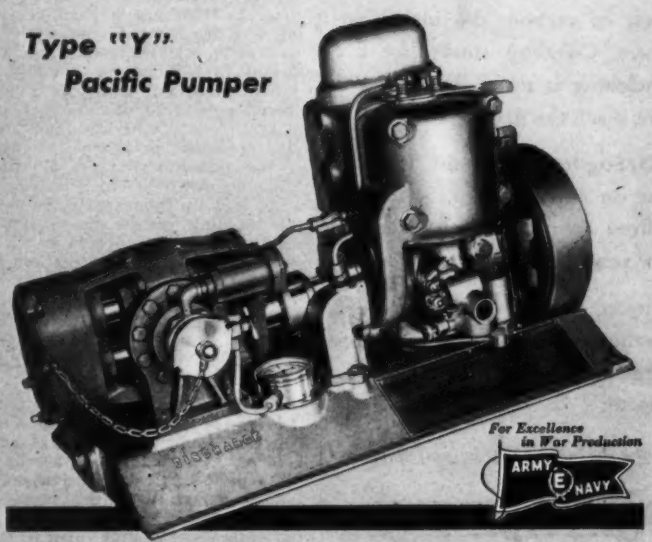
George W. Angell, formerly Deputy Director of the Safety and Technical Equipment Division of the War Production Board, Washington, D. C., has been commissioned a Major in the Corps of Military Police.

MOST POWERFUL PORTABLE PUMPER

for its Weight and Size

EVER BUILT!

Type "Y" Pacific Pumper



Free! JUST OFF THE PRESS—The third edition of our original, "FIGHT FIRE WITH WATER", has been completely revised. It is now more than a booklet—it is "A Manual". Write today for your free copy.

FIRE FIGHTING EQUIPMENT DIVISION

PACIFIC MARINE SUPPLY COMPANY

SEATTLE, WASHINGTON

From an arsenal of fire fighters including such famous names as Fire Guard, Alaskan, and Floafome, General Detroit gives you C-D/Fog.

Newest of carbon dioxide extinguishers, C-D/Fog snuffs out fire by enclosing it in an icy grip. Air cannot reach the flame.

C-D/Fog leaves no stain. It is safe to use on electrical, oil, and gasoline fires. It is equally efficient in hot or sub-zero weathers.

General Detroit's known record in quality mass production assures you prompt delivery for all essential needs.

"Fire Protection is Victory Effort"

THE GENERAL DETROIT CORP.

Former Name The General Fire Truck Corp.

New York • DETROIT • Chicago

West Coast Affiliate: THE GENERAL PACIFIC CORP.
SEATTLE • LOS ANGELES • SAN FRANCISCO

Distributors in All Principal Cities

THE GENERAL DETROIT CORP. GENERAL DETROIT
2210 East Jefferson Ave., Detroit, Mich.

Please rush details on C-D/Fog and others in your complete line of fire extinguishers.

*Name*_____

*Title*_____

Tear out this simplified coupon and attach to your letterhead.

Manufacturers' Announcements

C. T. Ruhf, President of Mack Trucks, Inc.

Announcement of the election of C. T. Ruhf as president of Mack Trucks, Inc., has been made by Louis G. Bissell, chairman of the board, at a regular meeting of the board of directors. He has been with Mack since 1912.

C. T. Ruhf

Mr. Ruhf had been executive vice president of Mack since last January, following the death of E. C. Fink, former president and board chairman. Prior to that time he had been operating vice president in charge of factories.

In 1920 Mr. Ruhf was appointed assistant to the factory manager of the Allentown plant, in which position he served until appointed factory manager in 1937. In 1938 he was made operating vice president in charge of production at the company's plants in Allentown, Pa., Plainfield, N. J., and New Brunswick, N. J. In this capacity he supervised the building of the heavy-duty motor trucks and prime movers Mack is now supplying the armed forces and also the huge Mack-built transmissions used in many of the Army's 30-ton tanks.

Gamewell Stockholders' Annual Meeting Held

At the annual meeting of the stockholders of The Gamewell Company, Newton Upper Falls, Massachusetts, held on August 17, 1943, a reduction in the capital stock was authorized by the retirement of the entire issue of preferred stock. Following such reduction the authorized capital stock of the company will consist only of 200,000 shares of common stock without par value, of which 119,304 shares have been issued and are presently outstanding. A board of eleven directors was elected for the ensuing year and Mr. William C. Beck was re-elected Treasurer and Clerk. The directors are as follows: Benedict J. Baker, Chairman; William J. Carroll; Eben H. Ellison, Jr.; William P. Ellison; William C. Hotchkin; Dwight G. W. Hollister; Charles J. McCullough; Frederick B. Philbrick Leonard Spangenberg; Winslow L. Webber and George L. White.

At the organization meetings of the new boards of directors of The Gamewell Company and its subsidiaries following the annual stockholders' meeting, Mr. Benedict J. Baker was re-elected Chairman of the board of directors of Gamewell and each of its subsidiaries—The Rockwood Sprinkler Company of Worcester, Massachusetts, and the Eagle Signal Corporation of Moline, Illinois—in charge of all operations of the Companies. The officers elected for the companies comprising the Gamewell group are as follows: The Gamewell Company: Frederick B. Philbrick, President and General Manager; Roger W. Babson, Warren J. Miller and William C. Beck, Vice Presidents; John W. McAnarney, Secretary to the Board; and Warren J. Miller and Russell T. Smith, Assistant Treasurers—Rockwood Sprinkler Company of Massachusetts; William J. Carroll, President and General Manager; H. Clayton Kendall, Vice President; John W. McAnarney, Clerk and Secretary to the Board; Paul S. Smith, Treasurer; and William C. Beck, Assistant Treasurer—Eagle Signal Corporation: Matthew Porosky, President and General Manager; John W. McAnarney, Vice President, also Clark and Secretary to the Board; William C. C. Beck, Treasurer; and William M. Driggs, Jr., Assistant Treasurer.

The protective products of these companies include municipal and industrial fire alarm, police, and other emergency signaling systems, automatic sprinkler systems and traffic control systems.

Reed Chicago District Manager

In the August issue of this journal, on Page 483, L. F. B. Reed was listed as "Chicago Dist. Mgr., Fire Engine Div." of Mack-International Motor Truck Corp. This is incorrect, as Mr. Reed is District Manager of the Company.

Bee Stings Man—Causes Fire

Leave it to the sting of a bee to make fire news!

While driving along East Main Street near Broadbridge Road in Bridgeport, Conn., Theodore Abos lost control of his car which smashed into a tree and caught fire.

Abos, who was injured in the crash, managed to free himself from the burning car. He was picked up by a passing motorist and taken to Bridgeport Hospital and treated for head injuries and possible fractures.

Fire apparatus responded to an alarm and quelled the blaze after it had spread to nearby brush. The car was severely damaged by the smashup and the fire.

A doctor at Bridgeport Hospital questioned Abos on how the accident happened.

"I was riding along minding my own business when some son of a B of a bee buzzed his way onto by 'bean' and gave me the works!"

The hospital doctor believed his story and advised him to "Be careful of B's after this."

THOMAS F. MAGNER

Dean Landis to Leave OCD

It has been rumored that Dean James M. Landis, Director of the Office of Civilian Defense, will resign soon to go overseas as Deputy Director of the Middle East Supply Center at Cairo, where lend-lease supplies are distributed by a joint British-American board.

Convention Dates

Sept. 18—NEW JERSEY STATE FIREMEN'S ASSOCIATION. Soldiers' and Sailors' War Memorial Bldg., Trenton, N. J. Asst. Secretary, Fred A. Trowbridge, Morristown, N. J.

Sept. 21-24—CALIFORNIA STATE FIREMEN'S ASSOCIATION. Annual Meeting, Sacramento, Cal. Secretary, H. E. Strasser, 2046 Oregon Av., Long Beach 6, Cal.

Sept. 27-29—INTERNATIONAL MUNICIPAL SIGNAL ASSOCIATION. Annual meeting, New York, N. Y. Secretary, Irvin Shulsinger, 8 East 41st Street, New York, N. Y.

Oct. 5-6—FIREMEN'S ASSN. STATE OF PENNSYLVANIA. Annual meeting, Scranton, Pa. Secretary, Chief Charles E. Clark, Box 271, Wayne, Pa.

Oct. 12-14—TENNESSEE FIREMEN'S ASSN. Annual meeting, Nashville, Tenn. Secretary, Joe J. Martin, Fire Department, Nashville, Tenn.

Brush Fire Rages for Eighteen Hours

A brush fire which broke out in the Mount Diablo foothills, east of Oakland in the San Francisco Bay Area, recently raged uncontrolled for nearly eighteen hours, laying waste to more than 10,000 acres and causing much damage to grain crops, farm buildings and livestsock.

Fire fighting units from ten Contra Costa towns, plus fifty fire fighters from Camp Stoneham and fifty more from the Marsh Creek prison farm nearby battled the flames for many hours without success.

Three fire trucks, from Martinez, San Pablo and Crockett, were badly damaged as they were driven into the inferno in an effort to cut a rescue path to besieged farm houses. The rough terrain wrecked the rigs and they were saved from total loss only by herculean efforts of firemen and volunteers.

The fire started at noon and by night the sky was lighted up with the glow of the biggest grazing land fire in the history of the county while a pall of smoke mushroomed over a great part of the country.

The fire, of undetermined origin, started just outside Bryon and rapidly spread south toward Livermore and east toward Stockton.

In addition to companies from towns already mentioned, crews were dispatched from Antioch, Walnut Creek, Concord, Brentwood, Byron, Pittsburg and Livermore. Crews and equipment also were rushed to the scene from the State Forestry Service pool at Alameda and the Naval Air Station at Livermore.

The fire was finally checked after highway graders and trucks were pressed into service to encircle the fire with firebreaks in many spots. The fire ranged along a four-mile wide strip. At one time it was brought under control in one sector but it broke out with renewed fury in another, finding the chaparral and shocked grain rich prey for its licking tongues.

BOB GREENOCK

Old Copies of FIRE ENGINEERING Wanted

A reader is anxious to secure copies of FIRE ENGINEERING for the years 1932 to 1938. Anyone having these issues, and willing to dispose of them, is requested to communicate with the editor of this Journal.

ALBI-FIREPEL "S" — *the modern scientific fire retardant coating material...Protects against the intense sustained fire.*

EDNESDAY, AUGUST 4,
NATION'S FIRE LOSSES RUN $1,000,000 A DAY
Total for First Half of Year Is 12% Above 1942 Level
BOSTON, Aug. 3 (U.P.) — Fire losses in the United States averaged more than $1,000,000 a day for the first half of this year, Robert S. Moulton, chairman of the National Fire Protection Association's committee on fire record, announced today.
The preliminary estimate, he said, was based on the $190,514,000 total losses reported to the Na
Fire Underwriters

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FIRE PREVENTION WEEK
OCTOBER 3-9, 1943

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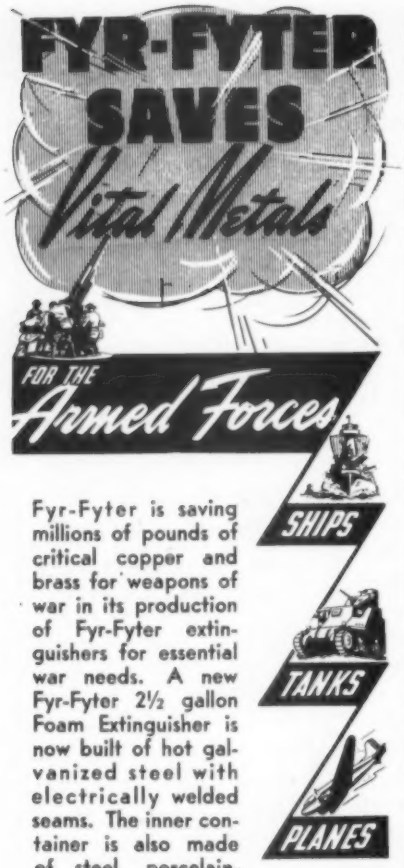

Fyr-Fyter is saving millions of pounds of critical copper and brass for weapons of war in its production of Fyr-Fyter extinguishers for essential war needs. A new Fyr-Fyter 2½ gallon Foam Extinguisher is now built of hot galvanized steel with electrically welded seams. The inner container is also made of steel, porcelain-enameled inside and out. It bears the approval of the Underwriters' Laboratories and carries an AES A-1-B-1 classification.

Another new Fyr-Fyter Pump Tank Type Extinguisher is also built of hot galvanized steel. The pump is made of steel tubing, porcelain-enameled. It is available in 2½ and 4 gallon sizes. Approved by the Underwriters' Laboratories with an AES A-1 classification.

AVAILABLE ONLY ON PREFERENCE RATINGS

Like all extinguishers, these new Fyr-Fyters are available only on orders bearing preference ratings. When Victory is won, we will have an enlarged and improved line of extinguishers available for all civilian needs. Remember Fyr-Fyter. You will have obsolete, worn-out equipment you will want to replace as soon as the war is over.

THE FYR-FYTER CO.
Dept. 101, Dayton 1, Ohio

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WAR BONDS
Fyr-Fyter

Fire Truck Crash Results in Lifting of Siren Ban

A fire truck crash, killing one fireman and injuring five others, two critically, resulted in the lifting of the ban against fire apparatus sirens in Washington, D. C., last month.

The fatal crash occurred on Tuesday afternoon, July 27, when the aerial ladder truck of Truck Company No. 1 collided with a large trailer truck at a downtown intersection when en route to a box alarm. The driver of the trailer truck was unable to hear the bell, the only warning signal on the apparatus, since he was in an enclosed cab and his truck was pulling a slight grade, adjacent to the intersection. The two heavy vehicles met in the middle of the intersection, the fire truck hitting the freight truck midway and causing it to overturn. The freight truck's gasoline tank was ruptured and poured flaming gasoline over the entire area. Private Everett L. Owens, driver of the fire truck, was thrown from his seat, one foot was caught between the brake and clutch pedals and he was suspended, head down, in the blazing oil. Despite heroic efforts of two of his comrades who rushed in to pull him free, he suffered third degree burns over his entire body and died a few hours later without regaining consciousness. All other firemen on the truck were hospitalized for burns of varying intensity, even the tillerman being burned by flames which leaped up through the ladders before he could extricate himself from his lofty perch.

Public indignation at this tragic accident mounted hourly, fire department officers saying that such a thing was bound to happen sooner or later when fire apparatus had to respond through heavy traffic equipped only with the traditional locomotive bell, long since deemed inadequate as a warning signal in present-day motor traffic.

Washington's fire apparatus had been responding since February 27 with only bells, and on some few pieces with inadequate exhaust whistles, to warn of their approach. The use of sirens was banned at that time by the order of the D. C. Commissioners, Washington's municipal governing body. It had resulted in frequent delay of the apparatus in responding to fire alarms, in many instances causing apparatus to come to a complete stop and wait for traffic to clear before being able to proceed. Two crashes, resulting from citizens failing to hear approaching apparatus, had occurred since February, in addition to the fatal crash.

Following in the Footsteps of His Grandad
Shown in the front seat of Engine 28 of the Bridgeport, Conn., Fire Department is Freddie, grandson of Captain Thomas F. Magner, FIRE ENGINEERING correspondent. Freddie looks pretty much at home in the seat of the big Mack.

River on Fire

The Naugatuck River, century old waterway that wends its course from above Waterbury, Conn., through the Naugatuck Valley as far south as Derby —"caught fire" at Ansonia on August 20 and "burned" for about an hour and a half, but the blaze caused no damage —not even to the river.

Three companies of Ansonia firemen concentrated their efforts on keeping the flames away from the understructure of a bridge spanning the river.

Ansonia's fire chief, Lawrence Tyler, said someone evidently had tossed a lighted match or cigarette into an accumulation of oil and grease floating on the surface. Many factories line the Naugatuck River banks.

THOMAS F. MAGNER

Rescue Truck Recently Added to the Teaneck, N. J., Fire Department
Teaneck's new rescue truck carries 275 items, among which are cutting tools, first aid equipment, inhalators, life boat brackets, oxygen masks and an electric bell which can be controlled from the dashboard of the apparatus. Frank A. Murray is Chief of the Teaneck Fire Department.

THE BOOK SHELF

MANUAL OF FIREMANSHIP—PART I, published by His Majesty's Stationery Office, London, and issued under the authority of the Home Office (Fire Service Department). Includes 250 pages, fully illustrated; price two shillings and sixpence.

This manual was written as a guide to the modern principles of fire fighting and to the equipment available. It is Part I of seven which are still to come, and is published in this form because of the need to get the material to the fire service without delay.

The seven parts cover the following subjects: Part I, Theory of Fire Fighting and Equipment; Part II, Appliances; Part III, Water Supplies; Part IV, Buildings and Their Protection; Part V, Communications and Methods of Receiving Calls to Fires; Part VI, Practical Firemanship and Part VII, Fireboats, Ship Fires, and the Work of the River Service.

Part I covers in detail the physics and chemistry of combustion, extinguishing fire, methods used by the fire service, hose, hose fittings, ladders, ropes and lines, hand and stirrup pumps, portable chemical extinguishers, foam and foam making branches, breathing apparatus, resuscitation apparatus and small tools.

The manual has been written as a means of instruction for the members of the National Fire Service, both whole-time and part-time.

FIREMEN AND THE LAW, A Survey of Court Decisions Defining the Legal Powers, Rights, Duties and Liabilities of City Firemen and Fire Departments; prepared by Charles W. Bahme. Published by the National Institute of Municipal Law Officers, 730 Jackson Place, N. W., Washington, D. C. Includes 62 pages. Price $2.00.

This study is a comprehensive survey of the legal powers, rights and duties of city firemen and fire departments. The author is a Captain in the Los Angeles, Cal., Fire Department and a member of the Bar of the State of California.

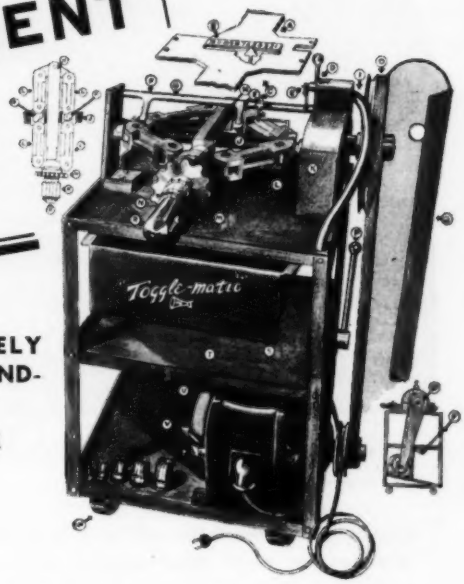
Included in the survey are chapters on the creation and organization of municipal fire departments, municipal liability to public for torts of fire departments, municipal liability to members of the fire department, fire prevention bureaus, pensions for firemen, salary and compensation, termination of employment, duty owed by public to members of fire department and liabilities of firemen.

This report will give city attorneys an authoritative book to which they may turn for assistance on legal problems of firemen and fire departments.

THE FIREMAN AND HIS PRESSURE GAUGES, by Alfred J. Mann, A. I. Fire E. Published by Lomax, Erskine & Co., Ltd., Aldwych House, London, W. C. 2. Fifty-six pages fully illustrated.

The author, a lecturer at the National Fire Service College discusses in a practical manner, pressure, atmospheric pressure, vacuum, positive pressure, dial reading pressure gauges, compound gauges, diaphragm gauges, the mounting of pressure gauges, gauge cocks, service to gauges and fittings, pump gauges, gauges used for breathing apparatus, flow gauges and test gauges.

STATION HOUSE EQUIPMENT FOR MAINTENANCE AND REPAIRS



★ TOGGLEMATIC ENTIRELY ELECTRIC POWER EXPANDER FOR HOSE
★ HAND HOSE EXPANDER
★ HOSE TEST PUMP
★ HYDRANT PUMP
★ UTILITY TOOL SET

Here are four tools to provide the Station House with the most efficient maintenance and repair equipment available:

The Toggle-Matic Power Expander—An entirely new principle of expanding hose, eliminating many of the objections found in other conventional type expanders.

The Trumpet Brand Hand Hose Expander—Made in sizes 1½" to 3" inclusive. Ruggedly constructed yet easy to handle in either forward or reverse operation. Has more "travel"—thus rings can be expanded regardless of hose walls.

The Trumpet Brand Hose Test Pump—An inexpensive unit which will handle all hose testing. A special 3 in 1 bleeder cap allows for testing of small hose and booster lines.

The Trumpet Brand Hydrant Pump—Made to fit and lock in any pentagon or square hydrant nut. Here is a Hydrant Pump that can be depended upon to operate in all weather conditions.

The Trumpet Utility Tool Set—Hydraulicly operated expander, hose clamp, bar cutter and utility fire apparatus tool. All in one compact set for general fire department use.

We suggest that you investigate, carefully, each of these items and write for our Bulletin No. 641, which describes each in full detail.

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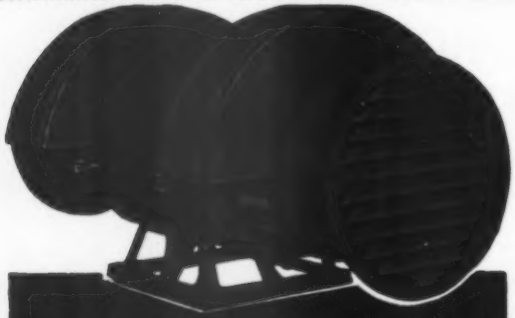

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This sturdy public alarm with its shrill, penetrating and distinctive vibrations meets and solves both problems.

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Double Jacket Fire Hose

The following replies in answer to questionnaire on double jacket hose arrived too late to be included in the symposium which appeared in the August issue of FIRE ENGINEERING. They are therefore incorporated herewith.

Wichita, Kans.

C. W. Brown, Chief

We have not used single jacket hose in our regular fire department work but from the experience we have had with this type of hose while training auxiliary firemen, we are of the opinion that it would not stand a great deal of pressure.

We have had three sections burst at 60 pounds pressure while being used in drills.

We do not consider this hose satisfactory for municipal fire departments.

Fort Wayne, Ind.

Carter Bowser, Chief

We have used some single jacket hose and find it very unsuitable for fire purposes.

In use by the auxiliary firemen, about fifteen sections burst with pressures ranging from 60 pounds up. So many blew at 100 pounds that we discontinued using it.

Most of the hose ruptured at the first section near the pump, and I might add that we used about 100 sections. To my knowledge, none of the couplings blew.

Gary, Ind.

John A. McCracken, Chief

To date we have not used any single jacket hose in the regular fire service.

However, in the OCD drilling and training of engineers, we find that this hose must be handled with very much care, and during our training program pressures were always held to a minimum to protect and conserve the equipment as well as the hose, which we were certain could not stand any excessive pressure.

Therefore, we did not experience any rupture or coupling failures with OCD hose.

Prior to our experience with OCD hose, I attended a demonstration where this hose was used and found it very very unsatisfactory for high pressures. That is what prompted me to reduce pressure and any rough usage of hose in our training program.

However, I feel that this hose is not satisfactory for municipal fire department use, because of layouts requiring long leads and elevated lines which call for high pressures.

I personally have no confidence in this hose, and would not recommend it for such purposes.

Firemen Sent to Wrong Address

An anonymous telephone call to the New York City Department on July 19 announced that a four-story brick building at 30 East 39th Street was burning. Firemen found that the fire was at 30 West 39th Street.

All four floors were burned out. The first floor, on which the blaze apparently originated from an unknown source, was untenanted. The upper three floors were occupied by the Celluloid Novelty Manufacturing Company, makers of hat trimmings.

Chief Ray Pence Rounds Out Twelve Years of Service

Chief J. Ray Pence of the Stillwater, Okla., Fire Department has rounded out twelve years of service with that organization. Under his leadership the department has been directly responsible for drastic reductions in Stillwater's fire insurance rates, representing thousands of dollars in savings to property owners.

Chief J. Ray Pence

Chief Pence started as a fireman at Healdton, Oklahoma, where he had established a machine shop in that new oil boom town. One night Pence and scores of other Healdton residents stood and watched the town's newest hotel burn to the ground. The hotel had been opened only that day.

Several others of the town's largest and best buildings had met the same fate because of the fact that there was no fire protection whatsoever. Then and there Chief Pence decided to start his own fire department. He approached several of the oil companies located in the town, who too had experienced high fire losses, with the proposition that if they would go together and buy a truck he would keep it in his machine shop, organize a volunteer department, and try to do something to stop the disastrous fires. The companies bought the truck and fire fighting equipment and a volunteer department was organized. He became chief of the first city-financed department in that city in 1926.

When the chief of the Stillwater Fire Department retired in July, 1931, the position was offered to Chief Pence, who accepted.

Chief Pence has directed the Stillwater department in the last twelve years to one of high reputation in firemanship circles. At the same time he was an important factor in establishing there the "West Point of Firemanship," the only firemanship training course on a college or university campus in the world offering college credit, a course that is housed in its own modern building on the campus of Oklahoma A. and M. College.

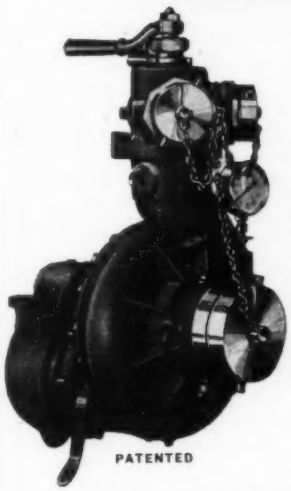
Chief Pence has been active in various firemanic organizations. He has held the office of president in the Oklahoma State Firemen's Association, the Oklahoma State Fire Chiefs Association and the Southwestern Association of Fire Chiefs. He also served as Secretary-Treasurer of the last named organization.

Barton Front Mounted

AMERICAN-MARSH PUMPS

Barton-American Midship

FIRE APPARATUS CENTRIFUGAL PUMPS



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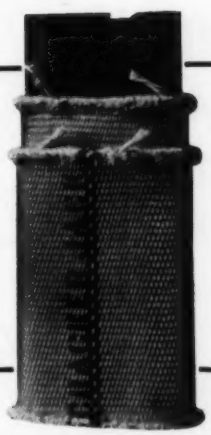
Crackerjack Fire Hose

Since 1905 this double jacket fire hose has been the standard on the Pacific Coast and the favorite of firemen.



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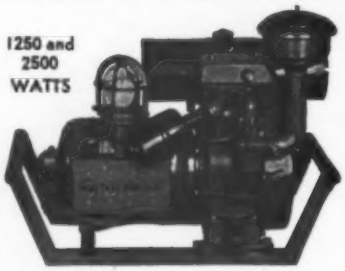

This 1250 watt, portable unit has been designed expressly for fire department use. It is small, light, compact and equipped with carriers for easy portability out on the job. Air-cooled 4-cycle engine 2⅞" bore x 2⅝" stroke. 2.4 H.P. 2 gallon fuel tank. Quick starting. Also 2500 watt size.

LARGER SIZES AVAILABLE

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OCD Forest Fire Fighters Service Organized

The largest number of trained volunteer forest fire fighters ever organized will be on guard in the nation's timberlands during the later summer and fall fire seasons, which are potentially dangerous because of wartime conditions, James M. Landis, Director of Civilian Defense, announced recently.

Enrollment in the OCD Forest Fire Fighters Service now numbers more than 185,000 volunteers who are being especially trained and organized in crews for the wartime job of fighting forest fires, according to reports to the Director from David P. Godwin, national coordinator.

An additional 65,000 volunteers are still needed to provide adequate protection to timber resources from the danger of fire resulting from war conditions, Mr. Landis said.

The Forest Fire Fighters Service was created by the OCD in July, 1942, as part of its nation-wide facility security program. As early as last fall, Mr. Godwin reported that it had already proved effective in combating fires in the Northeast portion of the country and the Lake States.

The Service is organized in forty-three states under the direction of State coordinators, thirty-four of whom are State foresters; eight, officials of the United States Forest Service, and one an Extension forester.

Training and operation of local forest fire fighting crews is chiefly under the direction of some 3,400 professional foresters, Forest Service and National Park Service rangers, State and county foresters, and fire control officers of other federal agencies.

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TURN OUT CLOTHING
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Our turnout suits are giving excellent satisfaction in most of the large fire departments throughout the U. S. and

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Fire Equipment for Protection of Resources

A means of providing fire protection for the nation's most essential resources was established recently by the War Production Board.

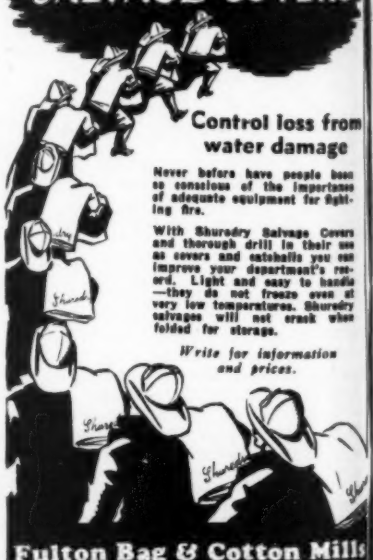
Under the WPB fire protection policy, which is limited to fire extinguishing equipment, protection will be provided only those resources assigned A ratings by the Resources Protection Board. Other resources will be provided fire protection only when specifically approved by that Board.

This, it was explained, should not be interpreted as denying equipment to any plant that can prove its urgency, but urgency must be established before the use of critical resources can be justified. This is necessary to insure the best possible use of the limited quantity of material and equipment which can be spared for this purpose.

At the same time, WPB announced the creation of a Fire Protection Committee to which all applications for fire extinguishing equipment involving construction will be directed. This committee will be headed by Harlow Lewis, Chief of the Materials Control Branch of the Project Division, who, with the advice of the other members of the committee, will determine what constitutes reasonable fire protection. In making these decisions, the committee will take into consideration the nature of construction, the occupancy, and exposure of the facility.

Other members of the Fire Protec-

USE Shuredry SALVAGE COVERS



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tion Committee will include representatives of the Safety and Technical Equipment Division; the Resources Protection Board; the Fire Prevention Section, Internal Security Division; Office of Provost Marshal General, War Department; and the Fire Prevention Section, Bureau of Yards and Docks, Navy Department. The staff necessary to service the committee will be provided by the Project Division.

Only applications for equipment involving construction, such as sprinkler systems, hydrant and hose systems, and stand pipe systems, will be directed to the Fire Protection Committee. All other priority applications for fire extinguishing equipment will be processed by the Safety and Technical Equipment Division.

The Resources Protection Board has delegated authority to the Fire Protection Committee to approve the installation of fire extinguishing equipment involving construction in facilities other than those rated "A" by the Board, as well as the authority for concurrence in granting or denying priority assistance for the equipment. Similarly, authority was delegated to the Safety and Technical Equipment Division for approval of applications not involving construction.

In general, the fire protection policy provides that the materials, components, facilities, and manpower required for fire protective equipment be made available insofar as compatible with other essential needs and with the objective of securing maximum protection with minimum use of critical materials.

Department and Other Reports Received

Oregon—Annual Report of the State Fire Marshal for the Year 1942.

Fort Collins, Colo.—Annual Report of the Fire Department for the Year 1942.

Reading, Mass.—Eighty-eighth Annual Report of the Fire Department for the year 1942. 12 pages.

New Haven, Conn.—Annual Report of the Chief of Department of Fire Service for the year 1942. 60 pages.

Milwaukee, Wis.—Annual Report of the Fire Department for the year 1942. 26 pages.

Philadelphia, Pa.—Seventy-third Annual Report of the Fire Insurance Patrol of the City of Philadelphia for the year 1942. 18 pages.

Dayton, Ohio—Annual Report of the Division of Fire for the year 1942. 24 pages.

Belmont, Mass.—Annual Report of the Fire Department for the Year 1942.

Minneapolis, Minn.—Annual Report of the Fire Department for the Year 1942. 42 pages.

Beverly Hills, Cal.—Eighteenth Annual Report of the Fire Department 22 pages.

Denver, Colo.—Annual Report of the Fire Department for the Year 1942.

Northwest Fire School—Proceedings of the Sixteenth Annual Fire School. 80 pages.

West Virginia Fire School—Proceedings of the Twelfth Annual Fire Service Extension School. 80 pages.

ELK HART IND

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DEPENDABLE EQUIPMENT FOR EVERY FIRE DEPARTMENT NEED

Do not buy equipment without first consulting the Elkhart catalog. Let it be your guide to quality products.

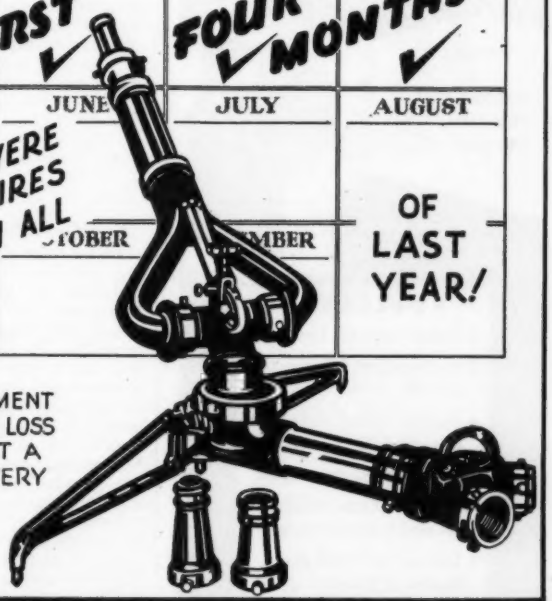
PARTIAL LIST OF ELKHART PRODUCTS

Leader line sets • Hose pipes • Playpipes and holders • Spanners • Nozzles of all kinds • Axes • Couplings • Shut-off Nozzles • Extinguishers • Hose clamps • Fire hose test pump • Fire hose couplings • Hydrant gates • Pump valves.

ELKHART BRASS MANUFACTURING CO., Inc.
ELKHART, INDIANA

★ 1943 ★

JANUARY FEBRUARY MARCH APRIL
IN ✓ FIRST ✓ FOUR ✓ MONTHS ✓
MAY JUNE JULY AUGUST
THERE WERE MORE FIRES THAN IN ALL OF LAST YEAR!
SEP[illegible]TOBER [illegible]MBER



LET OUR EQUIPMENT LOWER THE FIRE LOSS IN YOUR CITY AT A TIME WHEN EVERY AVAILABLE INDUSTRY IS NEEDED!

SAMUEL EASTMAN COMPANY, Inc.
CONCORD, N. H.

UNLESS YOU WEAR . . .

GAS-TIGHT Fog-Proof GOGGLES

Water placed inside keeps lenses clear. Best known eye protection!

SAMPLE $1.65

DUPOR No. 20 Twin-Sponge MASK

Double sponges filled with water give cool, smoke-free breathing!

SAMPLE $2.25

Samples of both sent $3.90 *Postpaid*

H. S. COVER, 68 Chippewa St., South Bend, Ind.

THE *New* WHEAT *Rechargeable Spotlight*

MODEL 158

2500 FOOT BEAM
25000 CANDLE POWER
1000 HOURS OPERATION

Critical Materials Reduced to a Minimum to Insure Availability

FEATURES

- ★ Positive "non-spill" Construction
- ★ Less expensive Operation than dry cells
- ★ Free use of Hands. Light carries conveniently on Shoulder Strap
- ★ Weighs only 92 ozs. complete
- ★ Simple to Charge and Water No need to take Lamp apart
- ★ Light can be Focused and Directed as Desired

WRITE FOR COMPLETE DETAILS

KOEHLER MANUFACTURING COMPANY, INC.
MARLBORO, MASSACHUSETTS, U. S. A.

Practical Training

(*Continued from page* 570)

Figures 16, 17 and 18 show respectively the use of the clove hitch and half hitch when raising nozzle, extinguisher and crow bar aloft. With the nozzle and the crow bar, only a single half hitch is used, while with the extinguisher two half hitches are employed in connection with the clove hitch.

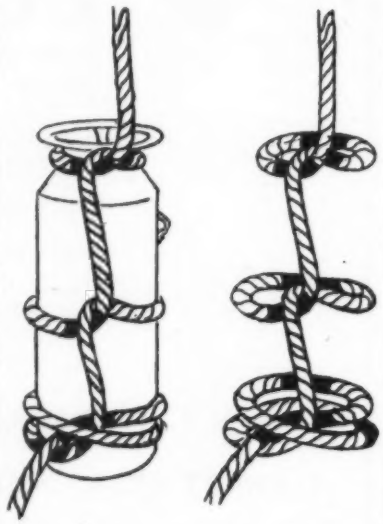


Fig. 18. Clove Hitch and Two Half Hitches Used in Sending Extinguishers Aloft.

Q. What is the timber hitch and for what is it used?

A. This type of knot is necessary where a rope is to be secured to an object which rotates. It is also safe and satisfactory for all purposes for which a clove hitch is intended. It can be employed for fastening a rope to a beam of a ladder, around a nozzle or line of hose, or in any emergency where fast work in attaching the line is necessary. The knot is nothing more than a figure of eight knot tied around a beam or pole. This knot is shown in Fig. 19.

Protection of Airplane Plants

Fire is the greatest menace confronting airplane and plane parts plants, Col. Ray G. Harris, Supervisor of the Midwesten Procurement District of the Army Air Forces, said in a statement recently. It is Col. Harris' job to see that the airplane plants in thirteen midwestern and southwestern states which include Kansas, Texas, Louisiana, Missouri, Arkansas, Oklahoma, Nebraska, South Dakota, North Dakota, Colorado, Wyoming, and New Mexico, keep up the tremendous output of combat and training planes for the Army under the redoubled war program without hitch, on schedule, and according to specifications. The task of fire prevention in the plants is delegated to Captain Donald Holbrook, District Fire Protection Officer, who operates an inspection system from headquarters at Wichita, Kansas.

"Whether caused by sabotage or carelessness, damage by fires in plane plants can be kept at a minimum by an effici-

"The Superior" A MODERN and PROVEN LIFE NET

The SUPERIOR LIFE SAVING NET is stronger than any other, because of the tested breaking strength of 1,800 lbs. of each individual rope.

The direct pull shock absorber system eliminates all friction and its greater resiliency provides for a safer, easier landing.

Made of Chrome Molybdenum steel, the frame may easily be folded for storage within a few seconds.

For the utmost in LIFE SAVING VALUE . . . "SPECIFY SUPERIOR".

For ECONOMY, have your old net converted into a "SUPERIOR".

Other SUPERIOR Products:
Training Nets and Structures
Ladder Belts
Life Size Training Dummies

William Moeller
Designer Consultant

SUPERIOR FIRE EQUIPMENT CORP.
235 E. 42nd St. New York, N. Y.

WANTED
IDLE
FIRE FIGHTING
EQUIPMENT

Today — right now — there are many American communities and municipalities which sorely need additional fire fighting facilities to give their citizens adequate fire protection and are unable to secure these because of war conditions.

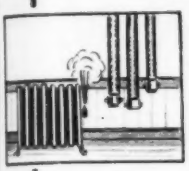
Search your own department or fire stations for any surplus apparatus or old usable equipment and offer it for sale through the classified "Opportunities" columns of this magazine. Rates are low—only $5 per inch.

FIRE ENGINEERING
24 W. 40th St., New York 18, N. Y.

CONSERVATION FACTS
on how to save your hose

Fact No. 10

NEVER STORE NEAR HEAT



Heat, while a drying agent is also a vulcanizing agent, where rubber is concerned. Never store hose near steam pipes or radiators. Even if hose is not in direct contact with the radiator it may be near enough to absorb a great deal of the heat radiated by the pipes and as a result those portions of the inner rubber lining so heated become hardened and will crack or burst upon use.

More than just Fire Hose. . . . The Goodall line includes the finest quality—

Chemical Engine and Booster Hose
Suction Hose
Couplings, Strainers and Nozzles
Coats, Boots and Utility Suits

We are looking for some live-wire distributors in certain territories. Write to our main office, giving a full description of your set-up.

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GOODALL
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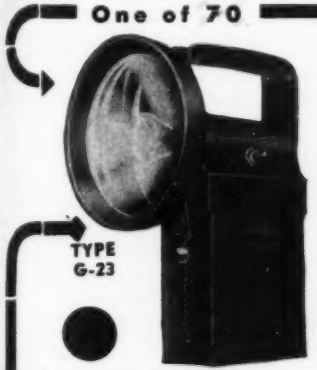
6 SOUTH 36TH STREET, PHILADELPHIA
Branch Stocks in Key Cities Across the Country

One of 70



• RECHARGEABLE •

- LIGHTEST IN WEIGHT
- MOST LIGHT
- LONGEST BURNING HOURS
- ALL NIGHT WATCHMEN'S FILAMENT
- 25,000 C. P. EMERGENCY FIREMEN'S FILAMENT
- SLIP SPARE BATTERY IN PLACE IN 10 SECONDS

70 "MASTER-LIGHTS"—
ONE FOR EVERY NEED

CARPENTER MFG. CO.
"Master ★ Light ★ Makers"
200 Sidney St.
Cambridge, Mass.

ent fire prevention and control organization," Col. Harris pointed out. Many large plants, he said, have an elaborate system, with a fire brigade headed by an experienced fire officer. In small shops, often the manager is the fire chief, aided by his master mechanic by day and his watchman by night.

Details which Capt. Holbrook recommends to plant managers, the Colonel said, included these:

Fire fighting crews, each instructed as to its exact duties.

Proper water supply, plugs, and sufficient hoselines, portable extinguishers, gas masks, and, in some cases, 50-foot extension ladders.

A fire alarm system within the plant, with easily identified buttons at numerous points—a 20-minute delay in calling the fire department at the Fall River fire was blamed for the loss of tons of rubber.

Automatic sprinkler protection.

Subdivision of combustible materials by storage in separate buildings and the use of fire walls.

Good housekeeping — cleaning up waste material, lint and rubbish, and especially magnesium scrap and alloy dust, from which many fires start.

Precautions in using portable welding and cutting equipment. Adequate ventilation to clear explosive atmospheres. Special protecive equipment for ovens and dryers.

Efficient burglar alarm and guard systems to combat saboteurs.

Cooperation with professional fire departments and those of other plants.

Fire Prevention "Movie Short"

In order to make the public conscious of the fact that all fires, small and large, help the enemy, and that most fires can be prevented, the Underwriters Laboratories have produced a movie short which runs for one minute and is available at cost to all fire prevention committees, fire departments, chambers of commerce, city departments and other civic groups.

Each film carries the name of the sponsoring committee or group, and in each sequence includes the words: Fire Prevention Week, October 3-9.

The cost of each movie is $4.90, which includes the final sequence with the name of the organization sponsoring it.

Cities are being asked to urge each theatre manager to agree to run a film with his regular show during the entire week of October 3-9.

Chief Edward A. McHugh Retires

Chief Edward A. McHugh of the Louisville, Ky., Fire Department retired recently after twenty-six years' service.

He was succeeded by Assistant Chief John Krusenklaus, head of the Fire Prevention Bureau since 1934.

National Safety Congress to Meet

The National Safety Congress will hold its annual conference in Chicago, Ill., on October 5, 6, and 7. The Sherman, La Salle and Morrison are the convention hotels.

QUICK

The first FIRST-AID IN THE TREATMENT OF BURNS

The quicker a burn is treated after occurrence, the less probability of blister formation and complications. Remember, the first five minutes are often the most important in the surface treatment of burns. That's why Gebauer's Tannic Spray should be conveniently available at all times. A stable, antiseptic tannic acid solution, ready for instant use. Simply "press the lever" on the dispenseal bottle and direct cooling, soothing spray over burns. Evaporates rapidly, leaving protective tannic film. Available wherever first aid materials are sold. Write for literature.

THE GEBAUER CHEMICAL CO.
Cleveland, 4, Ohio

Gebauer's

TANNIC SPRAY

For CIVILIAN DEFENSE

VALVES
HYDRANTS

Experience indicates that more damage is done in an enemy air raid by incendiary bombs than by demolition bombs. City officials and water works operators are striving for maximum fire protection by increased installation of high quality and dependable fire-hydrants and valves, such as M & H.

M&H VALVE
AND FITTINGS COMPANY
ANNISTON, ALABAMA

SEALAND TRAILER PUMPS

These mobile trailers made in 150, 250 and 500 gallon units are powered with gasoline motors carry 500 ft. of double jacket Fire hose, and may be equipped with 100 gallon booster tanks. Skid mounted units can be furnished Pumps can be purchased without trailers.

THE SEALAND CORP.

Centrifugal Pumps—Fire Alarm Systems—Modern Fire Apparatus

Post Road & Maple Ave.,
P. O. Southport, Conn.

BOYER

Headquarters for
"DEPENDABLE"
FIRE APPARATUS and FIRE DEPARTMENT SUPPLIES

★

FORTIFY FOR FIRE FIGHTING

★

BOYER FIRE APPARATUS CO.
LOGANSPORT INDIANA

The Round Table

(*Continued from page* 582)

to get any grease on the inside of the coupling. The greasing is done after the hose has been cleaned and dried.

The results have been fair but must be followed up after each fire. But there are other defects that should be considered. We have had malleable couplings crack from hitting the pavement while laying a line to a fire; also couplings have been run over and cracked. We have had couplings come cracked from the factory or cracked in shipping.

George E. Hare, Chief, Jacksonville, Fla.: W. G. Lutkey, Chief, Oakland, Cal.; G. R. McAlpine, Chief, Oklahoma City, Okla.; John A. Keefe, Chief, Detroit, Mich.; Edward A. McHugh, Chief, Louisville, Ky.; C. C. Stryon, Chief Atlanta, Ga.; A. F. Taylor, Chief, Richmond, Va.; E. B. Feaster, Chief Lincoln, Neb.; C. M. Johnson, Chief Knoxville Tenn.; Earl A. Traeger, Chief, Minenapolis, Minn.; C. W. Brown, Chief, Wichita, Kans.; Thomas H. Cotter, Chief, Providence, R. I.; Dan A. O'Connor, Chief, Omaha, Neb.; and Harry A. Jarvais, Chief, Elizabeth, N. J., report that malleable iron couplings have not been used in their departments, and because of this they do not feel qualified to give an opinion regarding use of these couplings.

* * *

The following replies are in answer to a previous question on the training of individual watchmen.

Martin J. Hayden, Chief Engineer, Bridgeport, Conn.: A large percentage of industrial watchmen are former firemen who have been retired and are familiar with fire hazards and how to cope with them.

Several industries maintain companies of trained men who are trained under very competant men.

Watchmen are instructed on discovering a fire to sound the alarm, then open gates and direct the fire companies to the location of the fire. They must not attempt to fight it themselves.

A course such as this is very instructive and when called upon, the men know what to do and how to do it.

A. Brown, Chief, Birmingham, Ala.: Courses in fire protection are given to those plants which desire them. These are under the auspices of the Drill Master and the Assistant Drill Master of the Fire Department.

The Course includes instruction in the use of extinguishers, the fundamentals of fire fighting, fire prevention and inspection, the correct way of transmitting alarms, etc.

Before starting the class I contacted by mail and the drill master visited all the large plants in the city. All expressed interest and the intention to cooperate. I mailed all plants notice of the day and the time of starting of the course. We had about twenty watchmen from five plants in attendance. We should have had 200.

There is no doubt that the members attending were greatly benefited by the course. I believe a course like this will cut down fires appreciably. The majority of large plants in this city have a regular uniformed force and maintain patrols which at least assures an alarm in the early stages of a fire. But even at that a course such as we had would mean there would be less chance of a fire and still less chance of its getting away.

C. C. Jennings, Chief, Tulsa, Okla.: Industrial watchmen are given a course in fire protection and related subjects by the Drillmaster of the Fire Department. The course covers the organization of plant fire brigades.

It is very beneficial from a fire protection standpoint. The watchmen are taught to detect fire hazards, the proper types of extinguishers to be used on the different kinds of fires, the care of extinguishers, the calling for help, etc.

Samuel J. Pope, Chief, Boston, Mass.: A Fire Defense Training School was held last May by the Boston Chamber of Commerce and the Division of Vocational Education of the Massachusetts Department of Education.

The course included lectures on "The Importance of Fire Prevention and Control", "Cooperation with the Fire Department", "How to Guard Against Arson and Sabotage", "The Use of Fire Extinguishers, Automatic Sprinklers and Signalling Systems", "Types of Bombs and Methods of Extinguishment", "What Air Raid Precautions Should Be Taken in Apartment Houses", "What Air Raid Precautions Should Be Taken in Retail Stores", "What Air Raid Precautions Should Be Taken in Office Buildings", and "What Air Raid Precautions Should Be Taken in Industrial Plants". In addition moving pictures on "How Fires Start in Industry"" and "They're Dropping Incendiaries", were shown.

The watchman ordinarily watches the property and calls aid when needed. After receiving instructions in fire protection, he becomes not only a watcher, but a protector, capable of taking proper action and using facilities at hand in case of fire.

G. R. McAlpine, Chief, Oklahoma City, Okla.: The Fire Department gives a regular plant protection course to watchmen at their plants, or at Fire Headquarters.

The course includes first aid, fire prevention, fire inspection, handling of fire alarms, operating and inspection of first aid, fire extinguishers and protection against sabotage. The management of these plants is very cooperative.

The management becomes fire conscious, which is a great benefit to the plant and also to the Fire Department. The Department becomes acquainted with the watchman and the plant in which he works. If there is any tendency to ignore the rules of safety in the plant through carelessness or otherwise, the Department has a chance to correct it before a disaster occurs.

Edward J. Kerr, Chief, Pittsburg, Pa.: In some cases a course in fire protection for plant watchmen is held by the training school instructors and other officers of the Bureau of Fire. The course includes lectures, demonstrations and evolutions.

The trainee is better fitted for his

A BADGE
to be proud of
NOW
more than ever
BEFORE!

Now — because of the government's prohibition of the use of nickel, brass, copper, nickel plating, and chromium — we are making these badges and insignia in sterling silver, sterling silver gold plated, rolled gold on sterling silver and 14 karat gold.

Today — for just a little more, you get a sterling silver Braxmar Badge — without doubt the best badge you can buy anywhere.

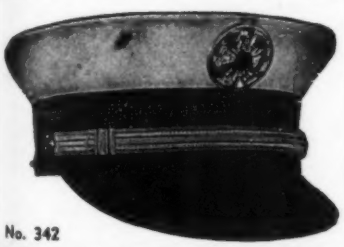
The blue covered catalog is the latest published but write for our new price list, effective July 29, 1943. Only prices in the catalog on 14 karat gold items are still in effect. All auto plates are discontinued for the duration.

C. G. Braxmar Co., 242 W. 55th St., N. Y.

BRAXMAR BADGES

Standard for over 60 years

WENTWORTH
FIREMAN'S UNIFORM CAPS
UNION MADE PROMPT DELIVERY



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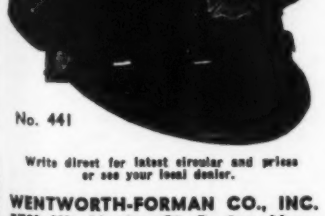
Wentworth Fireman Caps are made of the Highest Quality Standard Materials available and by the Best Skilled Union Craftsmen in all the New and Standard Styles. Our 47 years of experience and skilled workmen guarantee you AMERICA'S GREATEST CAP VALUE in all WENTWORTH FIREMAN CAPS.



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WENTWORTH-FORMAN CO., INC.
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Manufacturers
Fireman Cap Specialists for Over 47 Years

work should a fire occur. He learns the use of auxiliary fire extinguishing equipment, the proper methods of summoning aid, how to detect hazards around his plant and also what to do in the event of an emergency.

E. P. Feaster, Chief, Lincoln, Neb.: The industrial plants in Lincoln do not have a course in fire protection. I believe that such a course would be of great help to the Fire Department.

H. C. Root, Chief, Springfield, Mass.: A course of training was given plant watchmen under the auspices of the Massachusetts Department of Vocational Education and the Fire Prevention Division of the Safety Council with the cooperation of the Fire Department. The course consisted of lectures and fire prevention demonstrations.

We have found that these courses make for closer cooperation between industry and the Fire Department. We've had only eight losses in industry this year.

Z. F. Drouin, Chief, Lewiston, Me.: Industrial plant watchmen are given a course in the use of extinguishers, location of alarm boxes, etc. A few incidents of late have shown that these plant watchmen do go into action. All we have found to do was see that salvage covers were spread and the water shut off and mop up. Compared with past experiences these watchmen are much more alert than formerly. The Army is now training them still more, we have been told recently.

Frank A. Northcutt, Chief, Covington, Ky.: We are training plant watchmen in the fundamentals of fire fighting and prevention.

We are training men in all walks of life for auxiliary firemen. There are some watchmen in these classes. In my opinion, this training would make the men more careful in their habits and also more fire conscious.

Henry L. Hilles, Chief, Tucson, Ariz.: We do give a course in fire protection to industrial plant watchmen, but I believe that all watchmen should be instructed in fire protection.

Walter S. Blanton, Chief,Savannah, Ga.: One man from each plant is given a course of training under the supervision of the Chief of the Fire Department. He in turn trains other men. in his plant.

The majority of plants have cooperated willingly with us.

We have found that such a course is very beneficial, for it trains a man in fire prevention and the proper methods of combatting the various types of fires.

Leo J. Urbanski, Chief, Saint Joseph, Mo. Courses of fire protection are given to the plant watchmen of the packing industries, the Quaker Oats Company and the DannenMills by the Fire Department drill masters. They are given training in the various department evolutions.

The best results can be obtained when the industries realize the benefits of fire prevention and adequate first aid fire fighting equipment.

G. W. Stout, Chief, Charleston, S. C.: We do not give a course of training in fire protection and related subjects to industrial plant watchmen.

"ALL AMERICAN CHOICE"
INVINCIBLE NOZZLES
PREPARE — PROTECT

Portable equipment is the watchword of today.

Buy—
INVINCIBLE NOZZLES
and enjoy the benefits derived by experience of the pioneers in the nozzle field.

Fig. 403

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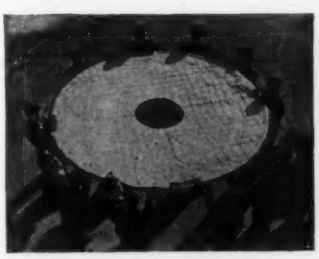
Successors to A. J. Morse & Son, Inc.
BOSTON, MASS.
1837 -- 1941

ATLAS
The World's Finest
LIFE NETS

Many hundreds of lives have been saved by ATLAS nets without any injury to the persons jumping or the firemen holding the net. The many exclusive ATLAS features insure your getting the world's finest net when you specify ATLAS Life Nets. Remember, the ATLAS is the only net with dual action impact absorbers. It's the ONLY modern net. Specify it!



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. . . WHEN Pumps MUST GET GOING FAST!
Not an instant to waste! It takes quick action to fight roaring flames—or to stop rising water! That's when portable pump units, powered by quick-starting gasoline engines, get into quick action. Another of the many standard and special assignments for hundreds of thousands of rugged, dependable Briggs & Stratton engines now doing valiant duty with our armed forces.
Briggs & Stratton 4-cycle, air-cooled gasoline engines are now being produced for hundreds of wartime uses. The same high quality and the same precision that have built for Briggs & Stratton an international recognition as making "the world's finest air-cooled gasoline engines," are maintained regardless of new production peaks.
Soldiers, sailors and fliers have now joined the millions of civilian users in proclaiming, "It's powered right — when it's powered by Briggs & Stratton."
BRIGGS & STRATTON CORP.
MILWAUKEE 1, WISCONSIN, U. S. A.
4 CYCLE
BRIGGS & STRATTON
GASOLINE ENGINES
ENLIST YOUR DOLLARS
BUY WAR BONDS

ADVERTISING INDEX

FIRE ENGINEERING

SEPTEMBER, 1943

	Page
Acme Protection Equipment Co., Inc.	598
Akron Brass Mfg. Co., Inc.	598
Albi Firepel Corp.	598
American District Telegraph Co.	598
American Marsh Pumps, Inc.	598
American Rubber Mfg. Co.	598
Anderson Fire-Fighting Co., Inc.	538
Atlas Safety Equipment Co., Inc.	600
Bean Mfg. Co. Division, John, Food Machinery Corp.	548-549
Boyer Fire Apparatus Co.	600
Braxmar Co., Inc., C. G.	600
Briggs & Stratton Corp.	600
Cardox Corp.	598
Carpenter Mfg. Co.	601
Circul-Air Corp.	578
Cover, H. S.	600
DuGas Engineering Corp.	550
E & J Mfg. Co.	547
Eastman Company, Inc., Samuel	599
Eddy Valve Co.	598
Elkhart Brass Mfg. Co.	599
Emerson Co., J. H.	Inside Front Cover
Eureka Fire Hose Division, United States Rubber Co.	579
Federal Electric Co.	541
Fog Nozzle Co.	Back Cover
Four Wheel Drive Auto Co.	Inside Back Cover
Fulton Bag & Cotton Mills	598
Fyr-Fyter Co.	594
Gamewell Company	560
Gebauer Chemical Co.	601
General Detroit Corp.	592
Goodall Rubber Co.	601
Hale Fire Pump Co.	596
Homelite Corp.	586
Janesville Apparel Co.	598
Koehler Mfg. Co.	600
M. & H. Valve & Fittings Co.	601
McIntire Brass Works, E. N.	603
Mack Mfg. Corp.	551
Macmillan Petroleum Corp.	556
Midwestern Mfg. Co.	589
National Foam Systems, Inc.	583
Oren Fire Apparatus Div. of Roanoke Welding & Equipment Co., Inc.	559
Pacific Marine Supply Co.	591
Porter, Inc., H. K.	588
Powhatan Brass Mfg. Co.	552
Quaker Rubber Corp.	598
RCA Victor Division of Radio Corp. of America	585
Seagrave Corp.	558
Sealand Corp.	602
Sireno Co.	590
Smith & Co., D. B.	553
Sterling Siren Fire Alarm Co., Inc.	596
Superior Fire Equipment Corp.	600
U. S. Motors, Inc.	598
Ward LaFrance Truck Corp.	554
Waterous Co.	587
Wentworth-Forman Co., Inc.	603
Wooster Brass Co.	595

NEW FWD IN SERVICE AT ANCHORAGE, ALASKA

FWD model KHS, 500 gallon pumper recently purchased by Anchorage, Alaska. Equipment includes 300 gallon booster tank; Foamite generator; 30 ft. 3 section ladder, 14 ft. roof ladder; two 10 ft. lengths 4 inch suction hose; 2½ gallon foam extinguisher; all steel hose body.

FWD 500 GALLON PUMPER PROVIDES VITAL FIRE PROTECTION IN FAR NORTHERN PORT

Anchorage, Alaska — far distant outpost of Uncle Sam and a vital defense area — has recently put in service the FWD 500 gallon pumper shown above.

This city requires more than usually dependable fire protection because its dwellings and other structures are of wood-frame construction; a small unchecked fire could quickly spread and result in a major disaster.

In the "States" or its possessions fire-fighting authorities recognize the added merits of FWD apparatus and its many advantages of four-wheel-drive power and performance in getting to fires—faster—safer—under all conditions of road and weather.

FWD builds a complete line of fire trucks in all types and sizes; write for full information.

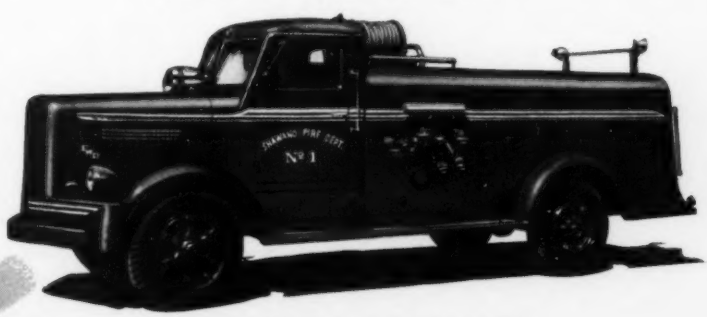
THE FOUR WHEEL DRIVE AUTO CO. • Clintonville, Wisconsin
***Canadian Factory:* KITCHENER, ONT.**

FWD TRUCKS

FOUR WHEEL DRIVE

FIRE APPARATUS

Built By the Oldest and Largest Four Wheel Drive Truck Manufacturer



FWD model KHR recently purchased by City of Shawano, Wisconsin. Equipped with 750 gallon per minute, 2-stage centrifugal model CD Waterous pumping apparatus; 100 gallon booster tank, safety glass cab.

FOGNOZLS DO JUST THAT

In the last issue of this magazine we proposed to reveal important developments in fire extinguishment. Fires of the future will be more and more controlled by methods based upon scientific research as to fire causes.

2 IMPORTANT STEPS IN THE CONTROL OR EXTINGUISHMENT OF FIRES

1. In the control of the great majority of fires, the fireman must get at the source of the fire if he intends to accomplish quick control or rapid extinguisment.

All fires are vapor fires. That is, the burning material either vaporizes at air temperatures as is the case with gasoline or alcohol, or the material through burning is heated to the point where combustible vapors are given off, as is the case in wood fires, heavy mineral or vegetable oils.

THE SEAT OF THE FIRE IS THE BURNING VAPOR

If the fireman can so dilute these vapors that they become *too lean* to burn, instant extinguishment is made.

FOGNOZLS DO JUST THAT!

2. However, before the advent of FOGNOZLS it was almost impossible for the fireman to get at the seat of the fire because of the heat. He had to stand back, pour on tons and tons of water in the hope that eventually he would stop the creation of vapor by cooling the burning material.

Some means of protection had to be provided to establish a screen between FIREMAN and FIRE so that he could get close enough to dilute the burning vapors.

FOGNOZLS MAKE THIS POSSIBLE

In the illustration above these two firemen are attacking a running gasoline fire of "Christmas Tree" proportions. To approach such a fire without the protection of a FOGNOZL Screen would be impossible. We refer to this method as providing Personal Protection. This fire was extinguished in 8 seconds. It is the method of the future as has been scientifically demonstrated by our armed forces.

FOGNOZLS—THE METHOD OF TOMORROW

- PROTECTION TO PERSONNEL
  TO FIREMEN AND FIRE VICTIMS
- RAPID EXTINGUISHMENT
  A MATTER OF SECONDS
- REDUCED WATER DAMAGE
  A RATIO OF 1 TO 30
- ECONOMY & AVAILABLE SUPPLY
  PLAIN WATER

GRISWOLD ORIGINAL WATER FOGNOZL

FOGNOZL FACTS

PREPARE BY ACCUMMULATING DATA ON THIS NEW WATER FOGNOZL FIRE-FIGHTING METHOD THAT HAS REVOLUTIONIZED OLD METHODS. FOGNOZL ACCOMPLISHMENTS ARE DAILY EMPHASIZED BY OUR ARMED FORCES • A BROCHURE OF **FOGNOZL FACTS** WILL BE SENT, WITHOUT OBLIGATION, TO THOSE ENGINEERS OR EXECUTIVES WHO WILL SO REQUEST IT ON THEIR OFFICIAL OR DEPARTMENT LETTERHEAD.
IN FOLDER CONVENIENT FOR YOUR FILE.

FOG NOZZLE COMPANY

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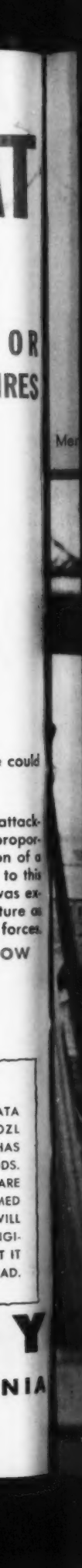
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